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Teaching Mindfulness to Individuals with Schizophrenia

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TEACHING MINDFULNESS TO INDIVIDUALS WITH SCHIZOPHRENIA

By

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Teaching mindfulness to individuals with schizophrenia.

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Mindfulness practice as a treatment intervention has mitigated psychopathological symptoms and improved aspects of quality of life for many individuals. Studies of mindfulness-based training interventions for individuals with Schizophrenia disorders have been limited. These have targeted psychosis only or addressed anxiety co-occurring with schizophrenia; there has not been a mindfulness intervention tailored to particular treatable experience(s) of schizophrenia spectrum disorders. In this exploratory treatment development research, 10 individuals with schizophrenia spectrum disorders were individually trained in a tailored mindfulness intervention. Predictions were that as a result of participating in the intervention, participants would report less distress in relation to positive symptoms, decreased anhedonia and associated distress, and increased quality of life. Also predicted was that for individuals where mindfulness ability improved over sessions, the participant would also report associated clinical improvement on the quantitative outcome measures. These were the Quality of Life Satisfaction and Enjoyment Scale-18 (Q-LES-Q-18), Positive Symptom Experience and Related Distress Questionnaire (PSEARD), portions of the Subjective Experience of Negative Symptoms Scale (SENS), Toronto Mindfulness Scale (TMS), Five-Factor Mindfulness Questionnaire (FFM), and qualitative instruments including the Trainer Mindfulness Rating Form, Life Events Update Form, General Qualitative Measure, and Exit Interview Questionnaire. Participants' qualitative responses as they proceeded through the training were also recorded, analyzed, and referenced to assist in generating and explaining themes and variations of participant experience in training. The goal was to improve the training manual and intervention characteristics for this pilot intervention. Results indicate that 60% of participants evidenced a positive clinical trend across their "linearized" trajectories on the four dependent variables and 70% of participants evidenced a clinically positive trend for reducing anhedonia-related distress. However, for a majority of participants, positive clinical trends did not occur for distress related to positive symptoms, anhedonia symptoms, and quality of life. Analyses also did not suggest any associative relationships between improvement in mindfulness ability and improvement in scores on outcome constructs. The qualitative data led to a conceptual analysis that implicates a changing and more centered self-concept as a candidate for the primary construct through which mindfulness ability can lead to beneficial outcomes.

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Introduction

Mindfulness has recently received a great deal of attention in the field of psychology, principally since its incorporation into Dialectical Behavior Therapy (DBT) (Linehan, 1993), Mindfulness Based Cognitive Therapy (MBCT) (Segal, Williams, & Teasdale, 2002), and Mindfulness Based Stress Reduction (MBSR) (Kabat-Zinn, 1982). Interventions utilizing mindfulness as either the sole treatment or as a component have demonstrated various beneficial outcomes for a variety of clinical and non-clinical populations (e.g., Carlson, Speca, Patel, & Goodey, 2004; Ramel, Goldin, Carmona, & McQuaid, 2004).

Individuals with psychosis have been included in the most contemporary mindfulness interventions (e.g., Abba, Chadwick, & Stevenson, 2008; Bach & Hayes, 2002; Chadwick, Taylor, & Abba, 2005; Gaudiano & Herbert, 2006). Individuals with schizophrenia were targeted in mindfulness interventions addressing co-occurring anxiety (Brown, Davis, LaRocco, & Strasburger, 2010; Davis, Strasburger, & Brown, 2007) and one addressing negative symptoms (Johnson, Penn, Fredrickson, & Meyer, 2009). However, most mindfulness treatments for individuals with schizophrenia have utilized Acceptance and Commitment Therapy (ACT); these and two other interventions have only addressed specific symptom areas (e.g., psychosis, anxiety), and not multiple experiences related to schizophrenia. Thus, researchers have yet to determine the effects of a mindfulness intervention created for and tailored specifically to the multiple different components that can define the experience of schizophrenia. A tailored and more comprehensive mindfulness training might prove to be beneficial for potentially

addressing and understanding multiple schizophrenia-related symptoms and experiences.

Mindfulness is a concept and practice traditionally associated with Buddhism (e.g., Hanh, 1992). Most contemporary descriptions reduce mindfulness to components in order to make it available for research and to a wide variety of consumers. Researchers agree and disagree on various mindfulness components, relationships among components, and operational definitions (Baer, 2003). However, most typically included in current mindfulness definitions are: a specific state of awareness, cognitive processing, and compassion, with associated gentleness (e.g., Baer, 2003; Brown & Ryan, 2003; Johnson et al., 2009). These components are said to work together and interweave, allowing one or another component to be enacted or to inform others (Baer, 2010; Horowitz, 2002).

A mindful state of awareness is described by Kabat-Zinn (1990) as a presence in the current moment, with purposeful focused and aware consciousness. "Purposeful" refers to a directed and shifting focus, where attention is not clinging to or fused with any particular stimuli (e.g., thought, feeling, visual perception). Brown and Ryan (2003) describe this as "operating *on*, rather than *within*, thought, feeling, and other contents of consciousness" (p. 823).

To understand this state of awareness further, mindfulness can be compared to other types of awareness, such as meditative and relaxed states. Alexander, Chandler, Davies, and Newman (1989) compared participant responses to either transcendental meditation, relaxation, or mindfulness training. Participants in the relaxation condition largely reported physical responses that were "peaceful but boring." Participants in the transcendental meditation condition largely reported "silent alertness." Participants in the

mindfulness training condition tended to report their experience as "an active state of directed thinking." Although mindful awareness can result in the experience of peace and/or silence, these are not intended goals (Baer, 2003).

The cognitive processing component of mindfulness is commonly understood as a curious and neutral non-judgmental noticing of stimuli just as they are in the moment (Segal et al., 2002). This can be contrasted with "mindlessness," a type of cognitive processing in which experiences are unconsciously and automatically categorized by referring to pre-existing beliefs, judgments, labels, expectations, and assumptions (Langer, 1989). Therefore, there is a narrowing of perspective in that what one experiences is what one expects to see, and not what may or may not be present. Mindful cognitive processing is an opening of perspective, rather than a mindless narrowing. The components can work together. The awareness component of mindfulness can allow judgments, labels, and expectations to be noticed, allowing a platform from which the cognitive processing component is enacted by the observer to allow experiences (including thoughts and feelings) to be as they are, without judging, identifying with certain stimuli, categorizing, altering, or adding valence.

In addition to mindful awareness and cognitive processing, the mindfulness tradition is also interwoven with a Buddhist tradition of "loving-kindness" (Hanh, 1992), contemporarily operationalized as compassion and associated gentleness toward the self and others. Neff, Kirkpatrick, and Rude (2007) describe compassion as treating oneself kindly and not harshly, recognizing that mistakes and failures are part of being human, and remaining aware of painful experiences rather than avoiding or over-focusing on them. Compassion can be either the product of or a precursor to the awareness and

cognitive processing components of mindfulness.

Based on these components, the overall goal of mindfulness practice is to change the relationship to one's experience, either simply to relate to one's current moment differently by being present in it (Kabat-Zinn, 1982), or to relate to stimuli differently so that "No judgment is made, nothing is added or subtracted, and no attempt is made to analyze where it came from or why it is present" (Abba et al., 2008, p. 77). Relating to the environment in a mindful way has been shown to decrease distress that is a consequence of relating to stimuli and experience in a non-mindful way (e.g., Segal et al., 2002). Further research outcomes are described later, but here let us consider a hypothetical example for illustration.

The Components of Mindfulness Explained With Imagery and Applied Clinically

We can think of the components of mindfulness and its practice in a metaphorical way; this is also a way that some of the mindfulness components might be explained and described to a person with schizophrenia participating in training. For example, one might visualize attention as a butterfly. The butterfly is directed by the agentic observing viewer or person to lift up gently and land on various stimuli, wings gently closing and opening with open alertness as the butterfly remains aware of what is occurring in the moment. In this process, the agentic observing viewer stays centered in the body as the butterfly is directed with aware flexibility. Therefore, there is a distance and a de-fusing from stimuli, but with a centeredness in one's own body and mind as the attention is purposefully directed. Neutral cognitive processing means that the viewing observer does not judge that which the attention-butterfly lands on or expect something specific from the landing site (including the self). In terms of compassion, the observing agent is better

able to direct the butterfly flexibly and allow its landings to be fuller and more informed experiences if the observer sheds uncomfortable defensive armor and notices that he/she is an observer very similar to those around him/her. Now the arms are flexible, energy in withstanding the uncomfortable armor is released to assist with butterfly direction and landings, and the pressure is off, all allowing the butterfly to be directed better and landed. In addition, the nature of the direction and landings (awareness and cognitive processing) can further enhance the observing agent's experience of feeling comfortable with the self.

For example, let us consider a person who has perceptually or experientially been stigmatized by other people. Stigmatization is something he or she experiences as negatively emotionally valenced and something to avoid or be protected from. Therefore, this person (consciously or unconsciously) may protect him or herself by expecting stigmatization, thereby hoping to avoid being surprised or distressed by any stigmatizing behaviors from others. This person's way of expecting stigmatization is to shut down around other people. The results of this person shutting down are that he/she is perceived by others as unapproachable and odd. Therefore, other people avoid the person or stigmatize and label that person. The consequences for that person may be not getting social needs met and feeling additionally stigmatized, also leading the person to feel distressed and upset.

Let us now consider enacting the principles or components of mindfulness as a way to relate differently to experience. With mindfulness intervention and practice a person could notice with flexible awareness that the expectation of stigmatizing interactions with others had arisen in his or her mind, view this with curious neutrality,

act or react in relation to stimuli that are actually present in the current moment, and choose simply to allow the thought to be without reacting to anything. This avoids the negative consequences of reacting to the habitual expectation.

The components or principles of mindfulness are not only useful with assumptions and expectations such as these but also can help to avoid amplifying or negatively perceiving an actual present experience, such as a physical sensation (Carlson, Speca, Patel, & Goodey, 2004). For example, the observing agent might mindfully observe a sensation without getting too drawn in to the sensation at the expense of other experiences, fusing with it as all of who he or she is, or creating additional emotional distress with reactive thoughts (e.g., "it will never end"). One might apply this approach to a disturbing perceptual experience associated with schizophrenic symptoms.

Another metaphor and an example that might be used to explain the awareness component of mindfulness would involve comparing the difference between swimming and gasping for air among crashing waves (stimuli and perceptions) versus stepping out of the water and surveying the crashing waves from the beach (mindful state of awareness). The waves are still there, but the perspective and relationship have been changed in a way that allows the viewer more choice and therefore more power. This includes less distress related to the stimuli and additional reactions to the distress itself, less of a sense of pressure to act or react, and more of an opportunity to choose a reaction that could increase future perceptions of ability and power. As a result, the mindful person would be more likely to feel calm and "centered" (Abba et al., 2008). This process is well-summarized by Lau, Bishop, Segal, Lau, Anderson, Carlson, Shapiro, Carmody, Abbey, and Devins (2006) who cite Linehan (1994) and Teasdale (1999) and state that:

> "Mindfulness meditation is considered a form of *mental training* to increase insight into how automatic, habitual patterns of over-identification and cognitive reactivity to sensations, thoughts and emotions increases stress and emotional distress, and to reduce the vulnerability to these states of mind as a way of producing lasting improvements in emotional well-being" (p. 1447).

Research on Applications of Mindfulness as an Intervention

Researchers have applied the practice of mindfulness as an intervention by itself (in various forms) or as a complement to other therapeutic techniques in treatment programs. The various outcomes reported here include reduction of psychological symptoms, increased perceived quality of life, and mitigated physiological symptoms (e.g., Carlson, et al., 2004; Ramel et al., 2004).

For example, Shapiro, Schwartz, and Bonner (1998) administered Mindfulness Based Stress Reduction (MBSR) training to 78 medical students over an 8-week period, for a total of seven weekly 2.5 hour sessions. The training was structured to include a didactic lesson followed by practice and discussion. The treatment consisted of the main components of MBSR: sitting meditation with awareness given to body sensations, thoughts, and emotions, a body scan to observe sensations, hatha yoga, and loving-kindness meditation, along with an added forgiveness meditation added specifically by Shapiro's research team. The participants also completed daily journals and homework exercises. The hypotheses predicted decreases in symptoms measured by the SCL-90 and state/trait anxiety (STAI), increases in empathy and listening, and spiritual feelings in comparison to the control group. There were statistically significant findings for all of these hypotheses.

In another study of MBSR, Miller, Fletcher, and Kabat-Zinn (1995) trained 22 participants with anxiety disorders in an eight-week, weekly, hour-long program that included basic MBSR components plus homework consisting of practicing mindfulness 45 minutes per day, six days a week, with supplied audio taped meditations. Homework incorporating mindfulness into daily life was also assigned, including practice while eating, walking, and talking. These additions were based upon the practicing authors' logic that mindfulness requires "daily discipline." The participants showed statistically significant decreases in anxiety that persisted for three years for most participants. In the follow up exit interview, 16 of the 18 participants available for interviewing agreed that the training had a "lasting value" for them.

In 2004, Tacon, Caldera, and Ronaghan administered MBSR to 27 women with breast cancer. They found statistically significant changes in helplessness-hopelessness and anxious preoccupation. These authors also found that after three months 88% of the participants were still practicing at least parts of the MBSR training. Additionally, some of the participants reported beneficial effects of the training on friends and family, due to their improved mental health and diffusion of the practice of mindfulness to those around them.

Mindfulness Based Cognitive Therapy (MBCT) (Segal et al., 2002) is another mindfulness intervention that has garnered some empirical support and evidence of beneficial outcomes (Kingston, Dooley, Bates, Lawlor, & Malone, 2007; Kuyken, Byford, Taylor, Watkins, Holden, White, Barrett, Byng, Evans, Mullan, & Teasdale, 2008). This treatment was developed for use with people experiencing depression and has been described as an integration of MBSR and Cognitive Behavioral Therapy (CBT) (Ma

& Teasdale, 2004). Weekly topics are called “automatic pilot,” “dealing with barriers,” “mindfulness of breath,” “staying present,” “allowing/letting be,” “thoughts are not facts,” “how can I best take care of myself,” and, “using what’s been used to deal with future moods.”

Another intervention that includes mindfulness is Dialectical Behavior Therapy (DBT) (Linehan & Heard, 1992). In DBT mindfulness skills are taught as “core” essential skills in addition to distress tolerance, emotion regulation, and interpersonal effectiveness skills. Mindfulness skills are the only skills in DBT that are reviewed at the beginning of the other skills modules. Observing, describing, and participating are taught as the “what” skills, and taking a non-judgmental stance, focusing on one thing in the moment, and being effective are taught as the “how” skills. Dialectical Behavior Therapy was initially developed to treat chronically suicidal individuals, and its use as an intervention has since evidenced beneficial outcomes for a variety of populations including individuals with Borderline Personality Disorder, adolescents with depression, and individuals with binge eating disorder (as reviewed in Dimeff & Linehan, 2001).

Different variations of mindfulness training have been applied to people who experience psychosis. Recently, Gaudiano & Herbert (2006) included a mindfulness component in an intervention targeted at individuals experiencing psychosis. The authors conducted a replication and expansion of a previous and similar intervention by Bach and Hayes (2002) where participants with psychosis were treated with Acceptance and Commitment Therapy (ACT), a therapy incorporating aspects of mindfulness. According to the developers of ACT (Hayes, Strosahl, & Wilson, 1999), one of the foci of ACT is to change one’s relationship to one’s thoughts and to approach and accept rather than

dispute or change them, especially in relation to one's own clarified values and goals. Similarly to CBT it is held in ACT that it is not an experience itself but rather one's reaction to the experience that determines the adaptive functioning of the individual. Treatment is focused on decreasing avoidance and struggle with internal experiences; each hour-long session included a "core set" of rotated mindfulness exercises, review, and suggestions for practice exercises. Treatment also included elicitation of values and behaviorally consistent goals.

A total of 29 inpatient adults (15 TAU, 14 ACT) with psychotic symptoms were assessed in the study (Gaudiano & Herbert, 2006); they received an average of three treatment sessions each. Participants in the ACT condition reported statistically significant improvements in distress self-ratings related to hallucinations, although actual hallucination frequency or believability did not differ significantly between groups. Participants in the ACT condition also reported significantly greater improvement on subscales related to social functioning and affective severity. The current work also focuses specifically on distress related to both positive and negative symptoms.

In another study Chadwick et al. (2005) extracted what they considered basic mindfulness components from MBSR and MBCT to develop another program. They reported on the first 11 individuals with psychosis (outpatient and inpatient) to complete at least one session of their four-session group curriculum consisting of breathing, centered awareness, and observing. Their stated goal was to "establish a mindful relationship with unpleasant voices, images, and paranoid thoughts," (p. 353) in contrast to being "lost in reaction" (p. 352) because of rumination and confrontation, judgment, and "experiential avoidance" (p. 352), which might be considered as related to

mindlessness. The Clinical Outcomes in Routine Evaluation (CORE) was the primary outcome measure for this study. Statistically significant reductions in the CORE score were found for 9 of the 10 participants who completed the instrument. On average, based on their self-reports, participants also became 36.6% more able to respond mindfully to distressing thoughts and images. Qualitative feedback indicated that the participants found the mindful way of relating to their psychotic symptoms to be refreshing and helpful (e.g., "…it didn't control you after all…it's just a voice," and "I suppose it just centres you. You don't have to worry about what's right and what's wrong in your head…") (p. 356). Also, the participants reported no adverse effects resulting from being in the group or learning mindfulness. Finally, the authors recommend more empirical investigation into the application of mindfulness with those with psychosis.

Davis et al. (2007) reported on a mindfulness group intervention targeting the anxiety experienced by individuals with schizophrenia using a curriculum adapted from MBSR and MBCT. Their sample consisted of five outpatient individuals diagnosed with schizophrenia. All participants were men; those with substance abuse were excluded from their study. Participants attended two one-hour mindfulness classes per week for eight weeks. Treatment consisted primarily of a 5-20 minute meditation practice followed by group discussion about this experience. Classes were based on flexible agendas and included didactic information. Sessions ended with a reflection upon a mindfulness-related quotation. Participants were asked about their experience in the group. In this treatment development study these qualitative data were the basis for the conclusions.

Core mindfulness skills taught by Davis et al. were awareness of "auto-pilot," compassion, and acceptance; awareness of the breath and body; applying compassion; awareness through focus on the senses; coping with distressing sensations; awareness and acceptance of thoughts and emotions as fleeting events; habits of clinging to and pushing away; open awareness; mindfulness of pleasant and unpleasant events; mindfulness as a way of life, and taking care of one's self. Homework was assigned for informal practice of mindfulness, such as eating mindfully. Each participant was also provided with CDs that contained guided mindfulness meditations.

Participants reported various benefits that they perceived from participation, including "grounding," and "healing." Meditations on self-compassion were most often endorsed by participants as being helpful, and this will be important later in this paper. The authors suggested that self-compassion may have mitigated self-criticism and therefore increased self-acceptance, enhancing the participants' ability to practice non-judging awareness. They noted that future research with mindfulness for this population may benefit from an emphasis on compassion.

Also, more recently, Brown et al. (2010) investigated the effects of mindfulness meditation training for anxiety in schizophrenia. Fifteen individuals with schizophrenia participated in this research intervention. Coded qualitative data indicated that as a result of the training participants reported relief from psychological symptoms, among other beneficial outcomes.

Of course, aspects of the experience of individuals with schizophrenia have also been treated successfully with other techniques, including Cognitive Behavioral Therapy (CBT) and behavioral methods such as Social Skills Training. These and other programs

supply a context as well as techniques useful in the development of this paper's mindfulness-based treatment for individuals with schizophrenia. For example, Temple and Ho (2005) found improvements on a measure of clinical global impressions, global psychosocial functioning, Global Assessment Scale ratings, overall symptoms, and delusions, when individuals with schizophrenia participated in a CBT program. In addition, Warman, Grant, Sullivan, Caron, and Beck (2005) administered CBT in a combined group and individual therapy format, reporting improvement in both positive and negative symptoms, as well as in anxiety, depression, and hopelessness.

A variety of techniques are used in CBT approaches to schizophrenia. Tai and Turkington (2009) review the literature on CBT as adapted to individuals with schizophrenia and describe how this type of therapy has traditionally focused on changing the beliefs behind the symptoms, while also noting that this approach is evolving. Maladaptive beliefs and automatic thoughts are identified, questioned, and replaced with more adaptive ones. Individuals are taught how to accomplish this on an ongoing basis. Also, coping strategies are taught to assist individuals with distress tolerance, in getting through difficult times without exacerbating symptoms and experiences, and decreasing negative symptoms.

Although supplemental approaches are utilized in CBT for people with schizophrenia (e.g., identification of antecedent triggers such as sleep deprivation), the primary intervention consists of identifying an irrational belief and replacing it with an alternative one. For example, an event is identified (e.g., "my foot hurts"), the meanings (belief) attributed to an event are identified (e.g., "alien eggs are embedded in my foot"), and these are named as irrational; a therapist may guide the individual to check out

evidence to assist in noting the irrationality of a belief. Consequences of attributing this belief to the event are discussed (e.g., distress, being unable to go to work), alternative beliefs are generated, and the individual is guided in replacing the maladaptive belief with an alternative one.

Thus, both CBT and mindfulness training are similar in the premise that most distress is the result of the mind's response to an event, rather than the initial event or experience, and that awareness of this phenomenon is important (Chadwick et al., 2005). The primary difference in the interventions applied to these responses and beliefs is that with CBT the belief is named as irrational, challenged, and replaced with another belief or meaning; in mindfulness the belief is observed, allowed to be as it is, and viewed with curious neutrality.

Despite studies such as those described above indicating beneficial outcomes in treating psychosis with CBT, Gaudiano (2005) notes in a review of this literature that these treatment applications are relatively novel; well-designed dismantling studies are indicated to determine what specific mechanisms are implicated in any positive results. In addition Bach and Hayes (2002) review evidence that treating auditory hallucinations and delusions by directly challenging beliefs (as with CBT) may actually exacerbate these symptoms. Tai and Turkington (2009) also report on CBT's evolution in treating schizophrenia; they note that despite CBT's apparent effectiveness, a problem with the approach is that one can rationally know something but still feel differently about it. In other words, one might know and admit rationally that a hallucination is not actually occurring but still feel as though it is. These authors then point to mindfulness-related and

meta-cognitive treatments, which evidence indicates may be able to attend to this treatment gap involving knowing something is false but feeling and believing it is true.

Social skills training (SST) is another psychosocial treatment option for schizophrenia that uses a behavioral approach and has yielded promising results and garnered empirical support. For example, individuals with schizophrenia who successfully learned social skills repeatedly report that they experience an improved quality of life after participating in the training (e.g., Benton & Schroeder, 1990; Hayes, Halford, & Varghese, 1995; Yildiz, Veznedarglu, Eryavuz, & Kayahan, 2004). Social skills training aims to develop well-defined and predetermined relevant social behaviors by identifying an adaptive social skill, breaking the skill down into specific steps, and practicing it (Bellack, 2004). For example, specific skills tailored for those with schizophrenia may be: asking questions about medications, checking out a belief, or introducing oneself to a stranger. Social skills training typically utilizes weekly group meetings, including didactics, skill modeling, and role playing, as well as weekly individualized skill coaching in one adaptation (Gottlieb, Pryzgoda, Neal, & Schuldberg, 2005).

Overall, SST typically targets specific social skills and the aim is to teach adaptive social behavior, often tailored to the difficulties encountered by an individual with a specific disorder. The goal of SST is specifically to increase adaptive social behavior to allow the individual to function better in social situations and therefore to increase the ability to get needs met and decrease potential secondary consequences of maladaptive behavior, such as emotional distress (Bellack, 2004; Benton & Schroeder, 1990). For the individual with schizophrenia, SST can also address such negative

symptoms as social withdrawal, low motivation, and anhedonia. Social skills training for individuals with schizophrenia has been successful in increasing interpersonal effectiveness and consequent ecological adaptive functioning (e.g., keeping a job) and quality of life (Yildiz et al., 2004). However, because SST is targeted to specific social behaviors, it does not address some important aspects of the schizophrenia experience, such as distress related to hallucinations and delusions, areas addressed by ACT and other therapies with mindfulness components.

The Varied Experience of Schizophrenia and the Related Possible Use of Mindfulness

Experiences of people with schizophrenia vary and are individual, as is any person's experience. Indeed, individual schizophrenia-related experience varies so much that some researchers and clinicians question the diagnostic categorizations and definitions of schizophrenia (Spaulding & Nolting, 2006). Therefore, in an effort to develop a tailored mindfulness program for people with a highly varied presentation found in the schizophrenia spectrum, references were made both to diagnostic criteria and to general categories of the disorder's phenomenology reported for those with schizophrenia. To conceptualize better how mindfulness has and could address experiences of a person with schizophrenia, example are described here of characteristics and attendant ways that mindfulness might be helpful.

Schizophrenia has been described in general terms as a disorder of confusion and disorientation (Reichenberg, Rieckmann, & Harvey, 2005); of difficulty distinguishing between tangible and intangible, "real" and "unreal," past and present (Herbener, Harrow, & Hill, 2005); as a disorder of distraction by and difficulty selecting relevant internal and external stimuli (Braunstein-Bercovitz, Dimentman-Ashkenazi, & Lubow,

2001; Laurens, Kiehl, Ngan, & Liddle, 2005); and as a disorder of the form and content of cognition (Chapman & Chapman, 1973).

There are various ways mindfulness may address such experiences. For example, mindful presence in the current moment increases awareness of one's physical presence and other substantial concrete things, such as feeling one's hands on a chair. These types of experiences could be grounding and orienting for an individual. From this anchor in the physical self and mind, mindful attention can be consciously and flexibility shifted. The ability to choose consciously that to which one attends can provide a feeling of agency and therefore less feeling of being overwhelmed. It could be useful to someone experiencing disorientation, problems distinguishing reality, and separating internal and external stimuli.

In addition, the curiously neutral cognitive processing of mindfulness could relieve pressure to determine if a perception is real or unreal; it just is what it is at its most basic neutral level: a thought, a feeling, a sensation. This neutral stance could also "short-circuit" difficult emotions (Miller et al., 1995) that could arise if the individual fused or identified with a perceptual experience. As a result this could mean that the individual is less overwhelmed and experiences less related distress; metaphorically, the person moves out of the crashing waves and onto the beach to survey the waves. In support of the general implications of this conceptualization, past mindfulness interventions for those experiencing psychosis (Bach & Hayes, 2002; Chadwick et al. 2005; Gaudiano & Herbert, 2006) have found that participants do learn to relate differently to their symptoms and that their distress related to the symptoms is mitigated, even if the symptoms themselves are not.

Another example of a well-known (American Psychiatric Association, 2000) schizophrenia experience is anhedonia; a loss of or diminished interest or pleasure (Andreasen & Carpenter, 1993; Johnson et al., 2009). Mindfulness may be able to address anhedonia because its awareness brings one into the current moment, allowing noticing of details, as well as providing a sense of being present as part of that current moment. Brown and Ryan (2003) report that in general mindfulness practice can enhance the richness and clarity of the moment and increase the frequency of positive emotional states. In addition, mindfulness meditation has evidenced increases in left-sided anterior activation of the brain, a pattern sometimes associated with forms of positive emotion (Davidson, Kabat-Zinn, Schumacher, Rosenkranz, Muller, Santorelli, Urbanowski, Harrington, Bonus, & Sheridan, 2003).

Moreover, the compassion component of mindfulness may be helpful in offering a softening and gentleness toward self and others. This could provide mitigation of negative feelings toward the self and others, opening up an opportunity for the person to find interest and pleasure in self and others. Indeed, Johnson et al. (2009) report that a loving-kindness mindfulness meditation intervention for individuals with schizophrenia resulted in increased frequency of positive emotional states and increases in personal resources (e.g., social, purpose in life); this may have resulted in the participants' reports of increased life satisfaction.

It is also possible that cognitive dysfunctions associated with schizophrenia (processing speed, attention, verbal and visual learning and memory, reasoning, categorization, and problem solving; Neuchterlein, Barch, Gold, Goldberg, Green, & Heaton, 2004) might be responsive to mindfulness training. For example, decreased

distress related to hallucinations and delusions might free up more attentional capacity. Also, a mindful and therefore different perspective on stimuli might enable reasoning and improvement in problem solving; category formation is also known to be influenced by attentional focusing processes. However, although prior cognitive remediation research interventions for those with schizophrenia have evidenced modest to moderate effect sizes related to improvements in cognitive dysfunction (McGurk, Twamley, Sitzer, McHugo, & Mueser, 2007), cognitive dysfunction in schizophrenia is typically considered to be relatively stable and enduring (Nuechterlein et al., 2004). It therefore might not be a highly appropriate target for a novel mindfulness intervention until more is known about the malleability of cognitive dysfunction in individuals with schizophrenia.

Overall, in attempting to tailor a mindfulness intervention to target symptoms related to schizophrenia, it appears possible to conceptualize mindfulness training as most beneficially treating the following schizophrenia symptoms or experiences: distress related to hallucinations and delusions, anhedonia, and overall quality of life (an umbrella concept that includes more euthymic mood and self-agency). Other schizophrenia experiences, such as hallucinations, delusions, stereotypic movements, alogia, affective flattening, and cognitive dysfunction may be more organic in etiology (e.g., Ford, 2005) and therefore may be less likely to respond well to such an intervention. Please see Appendix A for a detailed description of these hypothesized relationships.

A person's experience of schizophrenia and reaction to related experiences can be automatic, reactive, ruminative, confrontational, laden with emotional responses, restricted, unaware, habitual, judgmental, negatively labeled, lost in thoughts about the past or future, de-centered, lacking in insight, and choice-less. Mindfulness has the

potential of allowing a different way of experiencing and reacting to schizophrenia-related phenomenology through which the individual might experience agency, choice, stability, anchored-ness, compassion, and enjoyment. The research intervention described here strove to create and offer a tailored and comprehensive training program that might allow those with schizophrenia to tap more efficiently into mindfulness ability and benefit from its practice.

Structural Considerations

As noted, many versions of mindfulness interventions have been utilized in research to date, including MBSR, MBCT, ACT, the DBT mindfulness module, as well as combinations of one or all of these interventions or various components. Due to this researcher's goal of tailoring a comprehensive intervention to apparently treatable aspects of the experience of individuals with schizophrenia, she developed a training manual by compiling a selection of techniques and approaches from various sources. Certain and different aspects, skills, labels, and training features were pulled from pre-existing treatments (primarily MBCT and DBT) and from broader literature and understanding of mindfulness. The components and the discussion questions for the training manual and intervention were specifically chosen to address the experience of schizophrenia in an adapted and comprehensive fashion. In terms of training duration, formats vary, but the ones that are most common and also appear to evidence change within the given time period are once-a-week sessions extending over eight-weeks (e.g., Miller et al., 1995; Segal et al., 2002).

With regard to structuring the session, a format similar to that of social skills training has been utilized in previous studies with beneficial results (e.g., Chadwick et al.,

2005; Gaudiano & Herbert, 2006). This type of format includes sequentially introduced skills topics, discussion topics, behavioral practice, and homework assignments. This format allows acquisition of knowledge, discussion to determine personal relevance, behavioral practice of mindfulness, and out-of-session practice and cuing reminders from the session.

Practical Considerations and Possible Concerns

Although most mindfulness interventions to date have been conducted in group settings (e.g., Chadwick et al., 2005; Segal et al., 2002), practical considerations (see Method section) in the current research resulted in use of an individual training format. The training manual for the intervention studied here was structured as an eight-week one hour per week training with five specific skills areas, each with discussion topics that related the skill to the schizophrenia experience. Introduction and review were the topics for the remaining three weeks. Each session included a skill topic, discussion period, behavioral practice of mindfulness, and a homework assignment that was recommended but not required.

There is some evidence that meditative techniques can be iatrogenic for those with psychosis (e.g., Chan-Ob & Boonyanaruthee, 1999; Yorston, 2001). This raises a valid concern in teaching mindfulness to those with schizophrenia, as it is possible that a different state of awareness may result in exacerbation of symptoms, for example, becoming absorbed in a disturbing hallucination. However, there have been no reports of iatrogenic effects for psychosis in the mindfulness training literature to date. This may be because the state of consciousness sought in mindfulness is different from that in meditation techniques such as relaxation and visual imagery. Mindfulness teaches aware

and present attention, rather than absorption into a state. Therefore, it may be less likely that an individual with schizophrenia will become absorbed in a disturbing perception and more likely that the individual will be able to observe the experience non-judgmentally, therefore decreasing the likelihood of negative effects. Chadwick et al., (2005) specifically write of their informed and conscientious efforts to avoid possible iatrogenic effects of mindfulness practice. These precautions were also taken in this treatment intervention and are described in the Method section.

Summary

Schizophrenia is a serious mental disorder with a substantial burden of suffering and maladaptive functioning (Geanallos, 2005). Some aspects of schizophrenia, such as hallucinations and delusions, are relatively refractory and persistent (Breier, Schreiber, Dyer, & Pickar, 1991). They may not respond well to any current treatment, sometimes including psychotropic medications. Therefore, any potential treatment that might mitigate the symptom experience associated with this disorder and raise functioning would be highly desirable. Researchers are only recently beginning to apply mindfulness interventions to those with psychotic symptoms or schizophrenia. There has not yet been an intervention created specifically with the purpose of tailoring mindfulness more comprehensively to the treatable experiences of schizophrenia, focusing on the disorder's specific needs and characteristics. The research conducted here is based on the evaluation of mindfulness as a possibly worthwhile treatment intervention that might fit the needs of this population and supply benefits in various areas of functioning, especially distress related to positive symptoms, anhedonia, and quality of life.

Specific Hypotheses, Set I

The aim of the first portion of this research project was to determine the effects of a program of mindfulness training on individuals with schizophrenia. This was evaluated through the following hypotheses:

1. H_1: Individuals with schizophrenia who undergo mindfulness training will report a clinically positive trend of increasing quality of life from first training session to the last, as assessed at each training session by the Quality of Life Enjoyment and Satisfaction Questionnaire Revised–18 (Q-LES-Q-18).

2. H_2: Individuals with schizophrenia who undergo mindfulness training will report a) a clinically positive trend of decreasing anhedonia, and b) a clinically positive trend of lessening distress related to anhedonia from first training session to last. These dependent variables are assessed at each training session by portions of the Anhedonia-Asociality factor of the Subjective Experience of Negative Symptoms Scale (SENS).

3. H_3: Individuals with schizophrenia who undergo mindfulness training will report a clinically positive trend of lessening subjective distress related to positive symptoms of schizophrenia from first training session to last as assessed at each training session by the Positive Symptom Experience & Related Distress Questionnaire (PSEARD).

4. H_4: Increasing levels of mindfulness ability, as assessed by the 5-Factor Mindfulness Questionnaire (FFM) at pre-test and post-test and the Toronto Mindfulness Scale (TMS) at each training session, will be associated with more clinically positive trends on the Q-LES-Q-18, SENS 1 (behaviors and symptoms), SENS 2 (distress), and PSEARD.

General Research Questions, Set II

The overall aim of the second portion of this research was to supplement the first set of hypotheses by further evaluating the clinical utility of the mindfulness training intervention, including and in addition to examination of changes in outcome variables of quality of life, experiences of anhedonia, and distress related to positive symptoms. Qualitative data were referenced to identify specific factors and their relationships that may have influenced the treatment outcome and progress, with a primary interpretive focus on reactions to and experiences of this mindfulness training throughout the intervention process. Ultimately, these data were utilized to inform further development and refinement of the mindfulness treatment.

For the second aim of this study, a focused series of exploratory research questions were generated to guide the aim of qualitatively determining the effects of a program of mindfulness training on individuals with schizophrenia.

a. What are the individual's reactions to training? "Reaction to training" experiences are defined here as current life experiences that are a direct reaction to or consequence of this mindfulness training, as reported by participants. For example, the experience of forgetting to use mindfulness is a reaction to training that could affect outcomes of mindfulness training.

b. What experiences related to the training might affect a participant's response to the intervention, and how? "Related to training" experiences are defined for the purpose of this study as past or current life experiences that are related to mindfulness in general and the training manual's mindfulness skills and training but are not a direct reaction to or consequence of training. As an example, a history including more or fewer moments of

mindfulness experience in the past is an experience related to training that might influence openness to mindfulness training or its helpfulness.

c. What general experiences might affect a participant's response to the treatment intervention, and how does this occur? "General experiences" are defined for the purpose of this study as past or current general life experiences that are not explicitly or directly related to or are a reaction to this mindfulness training or skill topics. An example is experiencing physical problems or issues that may make it difficult to use mindfulness during training.

d. What, if any, relationships exist (across and within individuals) between reactions to training, experiences related to training, and general experiences? For example, it may be that the majority of participants report that physical pain ("general experience") results in a lower tolerance for attention and therefore decreased attention in the training session (a "reaction to training" experience). As another example, one single participant may report utilizing his or her own tactics for dealing with schizophrenia symptoms (a "related to training" experience) and therefore not expect the training to help (a "reaction to training" experience). Also, other relationships that are not directly identified by the participant are discussed by the trainer, based on her experience in training, notes, and analysis. These are referred to as "Trainer's Perspective and Themes." Note also that the emphasis here is on analysis of coded reactions to training, rather than the potentially less relevant "related to training" and "general experiences" codes.

Specific Hypotheses, Set II

The qualitative data were examined through the following "hypotheses"; please note, however, that specific hypotheses are not typically utilized for qualitative research, and the following are included only to serve as reference guidelines:

5. H_5: Reactions to training occurring throughout mindfulness training may be salient in determining treatment outcome and progress and may inform treatment development.

6. H_6: Experiences related to mindfulness training may be salient in determining treatment outcome and progress, and may inform treatment development. (Note again that the emphasis of the data analysis is on reactions to training.)

7. H_7: General experiences of individuals with schizophrenia may be salient in determining treatment outcome and progress and may inform treatment development. (See comment for H_6.)

8. H_8: Relationships among general experiences, experiences related to mindfulness training, and reactions to training may be salient in determining treatment outcome and progress, and may inform treatment development.

Method

Background

This research study was initially designed and proposed with the goal of conducting mindfulness training with three groups of five participants each, for a proposed total of 15 participants. Due to the pilot status of the project, the initial design was not intended to utilize control groups, and the analysis was designed only to make

within-subject comparisons for each individual with his or her own data as training progressed.

Due to difficulty recruiting participants, especially participants who were willing to participate in a group, the dissertation committee approved modifying the group-training design to an individual-training design, with a goal of training a total of 10 individual participants. Techniques of data collection and analysis remained largely unchanged. The one modification to data collection and analysis that was made was to include the mindfulness trainer's transcriptions of participant feedback and responses that occurred during the training sessions. These additional qualitative data were then analyzed along with the other qualitative data.

Participants

Participants were 10 individuals with a current diagnosis of either schizophrenia, schizoaffective disorder, or schizophreniform disorder, confirmed through an in-person interview with the mindfulness trainer who used a screening questionnaire based on the diagnostic criteria in the Structured Clinical Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 1996; see Appendix B); the trainer is also a clinician experienced in diagnosing schizophrenia and related disorders. Participants' ages ranged from 24 to 57, with a mean age of 37. Fifty percent of the participants were male and 50% female (see Table 1 for additional demographic information). Six of the participants were recruited from community mental health centers in the Boulder, Colorado area (county population of approximately 300,000), and four of the participants were recruited from community mental health centers in the Missoula, Montana area (county population of approximately 80,000). Participants were selected who were able to give informed consent and reported

the ability to maintain adequate attention in the weekly hour-long training sessions.

Six participants completed all sessions of the training and four partially completed the training or dropped out (3, 7, 2, and 6 sessions completed, respectively). Data are analyzed when possible from all ten participants; this represents an "intent to treat" sample. The participant who completed two sessions reported that she was juggling too many responsibilities, that the transportation to the sessions took up half her day, and that she wasn't yet finding that the training fit with her needs. The participant who completed three sessions reported that she did feel the training was very helpful but also felt she was juggling too many responsibilities and changes in her life at that time and was feeling overwhelmed by the addition of the training to her schedule. The participant who completed six sessions missed two sessions during the middle of training and stated that he would like to continue moving forward with sessions rather than make up the two sessions; this participant did then continue on through the remainder of the sessions. The participant who completed seven sessions missed one session and stated that she did not wish to make it up because she felt she understood the content based on the sessions she did complete; this participant also continued on to complete the remainder of the sessions. In all of these instances the trainer made efforts to communicate that continuing with training and making up sessions might be beneficial but did not pressure participants past this first effort in order to respect participant autonomy. When sessions were not made up, the trainer made an effort to incorporate some of the missed material into later sessions.

In order to enhance the external validity of this study, participants were <u>not</u> excluded based upon self-reported intake of psychotropic drugs or use or abuse of other

substances such as alcohol; they were also not excluded based upon self-report of other diagnoses. Participants were to be excluded if they were participating in any other mindfulness trainings or reported having a severe organic mental or neurological disorder that prevented them from comprehending the mindfulness program material. No participants met these criteria.

Experimental Rooms

A clinical therapy office in the Boulder, Colorado area was used for training and data collection for all six Boulder participants. A clinical therapy office in the Missoula, Montana area was utilized for training and data collection for all four Missoula participants.

Materials

Overview

Table 2 summarizes the questionnaire measures and their characteristics, including whether the questionnaire is intended to gather quantitative, qualitative, or both types of data.

Demographic Questionnaire. This 9-item questionnaire (Appendix C) was developed by the investigators in this study. It includes questions regarding age, substance use, perceived social support, education, and medication intake. This measure was completed by each research participant at pre-test.

Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q-18). The Q-LES-Q-18 (Ritsner, Kurs, Ratner, & Gibel, 2005) measures the five domains of physical health, subjective feelings, leisure time activities, social relationships, and general activities, with single question measures of medication intake and general life

satisfaction. The Q-LES-Q-18 was condensed from an initial 93-item measure created by Endicott, Nee, Harrison, and Blumenthal (1993). Ritsner et al. (2005) reported that the abbreviated, 18-item version showed high reliability, validity, and test-retest stability, specifically in individuals experiencing schizophrenia. Scores on the 18-item version range from 18 to 90, and participants rate themselves on a 5-point Likert scale where they rate their experience over the past week. Total scores are calculated by summing scores on all 18 items. This measure was completed by the research participants at pre-test, at each additional week of training, and at post-test.

Subjective Experience of Negative Symptoms Scale (SENS). The full SENS is a 24-item scale developed to measure subjective views regarding frequency of negative symptom-related behaviors and associated distress (Selten, Sijben, van den Bosch, Omloo-Visser, & Warnerdam, 1993). The ratings are elicited in a semi-structured interview conducted by the researcher (see Appendix D). The participant is first asked about the frequency of a symptom and asked to rate him or herself on a 5-point Likert scale ranging from 1, "very little" to 5, "very much." Then, participants are asked if the symptom bothers or distresses them (if the answer is no, the score for that item is 0); if the answer is yes, the participant is asked how much distress they are experiencing on a 5-point Likert scale (ranging from 1, "rarely," to 5, "very often"). Five of the six Anhedonia-Asociality scale items were extracted and the only ones administered for this study; these five items, which refer to decreased recreational interests and activities, inability to experience intimacy and closeness, few relationships with friends or peers, asociality, and anhedonia were especially relevant to the research questions and hypotheses and were therefore chosen based on clinical utility. The item regarding sexual

interest was not included because sexual interest can be affected by psychotropic medication. It was also considered that sexual interest is regarded as sensitive information in research. Score totals on the anhedonia behaviors scale (referred to here as SENS 1) can range from 5 to 25, and from 0 to 25 on the discomfort or distress scale (referred to here as SENS 2). Sum scores are calculated by adding up scores for the five items on the SENS 1 and separately adding up scores for the five items on the SENS 2. Test-retest reliability for the full eight items is reported as fair, ranging from .41 (decreased recreational activity) to 1.00 (decreased sexual interest, the item not used here). Internal consistency of the overall Anhedonia-Asociality subscale was an "acceptable" .59 (Kuder-Richardson coefficient). Test-retest coefficients for the ratings of disruption and distress were reported as high, with agreement between raters ranging between 40 and 74% (Selten et al., 1993). The five items of the Anhedonia-Asociality subscale (with associated distress questions) were administered by the trainer at pre-test, at each additional week of training, and at post-test.

Positive Symptom Experience and Related Distress Questionnaire (PSEARD). This measure (see Appendix E) was created by the trainer, the principal investigator of this study, for clinical utility and due to the apparent lack of an appropriate measure in the current literature. The structure and wording of the measure were adapted and modified from Bach and Hayes' (2002) method for measuring participants' reactions to their symptoms. The PSEARD is a 12-item questionnaire that first asks for the frequency of a positive symptom and then asks follow-up questions about related distress and insight. An example of a question sequence is: "In the past week, on average, how often have you heard voices or sounds that other people do not seem to hear," using a Likert

scale from 1, “not at all” to 7, “constantly, all the time.” There is a follow up question of “In the past week, on average, how distressed (worried, troubled, upset, bothered) are you when you hear these voices/sounds, on a scale of 0-100 (0 means not distressed at all, 100 is the most distressed you’ve ever been)?” There was further follow up of “In the past week, on average, to what degree did you believe that these things were real or true, on a scale of 0-100 (0 means you are certain these things are NOT real or true, and 100 means you are absolutely certain that these things are real or true)?” Only scores on the Distress scale (adapted from Bach & Hayes, 2002) are used here because this score is directly related to the research hypotheses. This scale consists of the four items that ask about distress related to symptoms, and score totals on this scale can range from 0 to 400. This sum score is calculated by adding up scores from the four items. The mindfulness trainer administered this measure at pre-test, at each additional week of the training, and at post-test.

Toronto Mindfulness Scale (TMS). Lau et al. (2006) developed and tested this 10-item scale to measure an individual’s mindfulness experience directly after participation in mindfulness practice. The TMS measures “a state of curious, decentered awareness of one’s experience that is operationally and conceptually distinct from anxiously preoccupied and ruminative states of self-focused attention” (p. 1462). These authors' research indicates validity and reliability for the TMS, with strong evidence for construct validity; those who were trained in mindfulness practice were also more able to evoke and utilize this skill than those who were not. Participants rate themselves on a 5-point Likert scale, and score totals can range from 0 to 40. Sum scores are calculated by adding

up scores from the 10 items. This measure was completed by the research participants directly after each weekly training session.

Five-Factor Mindfulness Questionnaire (FFM). This 39-item self-report instrument (Baer, Smith, Hopkins, Krietemeyer, & Tony, 2006) adapts items from five previously developed mindfulness questionnaires that were examined by the authors for their psychometric properties. Factor analysis of the five pooled questionnaires revealed five factors of mindfulness; scores on these factors change with mindfulness meditation experience. The five scales also demonstrated external and incremental validity. The factors are observing, describing, acting with awareness, non-judging, and non-reacting. Confirmatory factor analysis demonstrated the replicability of the five-factor structure. The questionnaire asks the participant to report what is "generally true for you," and responses are rated on a Likert scale ranging from 1 to 5, with 1 being "never or very rarely true" and 5 being "very often or always true." Examples of items are: "I believe some of my thoughts are abnormal or bad and I shouldn't think that way" (non-judging factor item, reversed), "I watch my feelings without getting lost in them" (non-reacting factor item), and "I find it difficult to stay focused on what's happening in the present" (acting with awareness factor item, reversed). Score totals can range from 39 to 195 and are the result of adding up scores from all items after some items have been reverse-scored. It was this total score that was used for this research. Research participants completed this measure at pre-test and post-test.

Trainer Mindfulness Rating Form. This 5-item questionnaire (Appendix F) was created by the PI in this study (who was also the mindfulness trainer) in order to track perceptions of how well each participant understood mindfulness and how well and how

often the participant was utilizing the skill, as well as to capture any overall or training-related comments, feedback, and memos of clinical impressions . It contains questions such as, “How well does ____ appear to understand the practice of mindfulness?” “How well does ____ appear to understand this week's skill?” and “How committed does _____ appear to be to the mindfulness teaching?” Participant responses and feedback during the skills presentations and discussions were also transcribed by the trainer onto this form (and also onto additional paper as necessary) and were denoted to indicate the skill and question area from which the response or feedback arose. The trainer completed this form for each research participant at each week of training. This information was used qualitatively.

Life Events Update Form. This 9-item questionnaire (Appendix G) was developed by the PI for this research study. It includes questions about changes in medication, social support, life events, work environment, symptoms, and miscellaneous other areas. This update form was used as a substitute for chart reviews to assess changes in participants’ lives that might influence their experiences during training. This information was used 0qualitatively. This measure was administered by the mindfulness trainer at the beginning of each training session.

General Qualitative Measure. This open-ended questionnaire (Appendix H) was developed by the investigators in this study and asks the participant for any feedback regarding thoughts or emotions. It is intended to capture any information not specifically included in other measures, and its data collection goal was to help inform present and future studies about general perceptions of training and individual experience. It asks the participant, “Please let us know here of any thoughts or feelings you may have at this

time, related to what you just experienced" and asks other questions about the experience of the session and what was helpful or needs improvement. This measure was completed by the research participant directly after the weekly training sessions.

Exit Interview Questionnaire. This questionnaire (Appendix I) was developed by the PI for this study. Six questions are rated on a Likert scale ranging from 0 to 4, with 0 being "not at all" and 4 being "very much." Examples of these questions are "How valuable did you find this training to be for you?" and "How often are you practicing the mindfulness skills right now?" Seven additional questions are answered yes/no, and if answered yes, are followed by an additional probe(s). An example is "Do you use mindfulness skills when symptoms arise," and, if answered yes, "Which skill(s), and what is the result?" This tool was administered to all participants by the researcher at post-test and then transcribed; for four of the participants (Missoula) it was audio-recorded and then transcribed.

Design and Procedures

Overview

Recruitment took place by means of supplying recruitment flyers to a primary contact person at each local community mental health center, after obtaining the center's approval (as well as completing the University's IRB process). The flyers stated that the mindfulness training was for individuals with schizophrenia. The primary contact person posted and distributed flyers throughout their location(s), and interested potential participants then called the contact number on the flyer. During this phone conversation any questions from the participant were answered and an in-person meeting was scheduled.

The first recruitment site in the general Boulder, Colorado recruitment area was a privately owned treatment center for schizophrenia. Five participants from this site initially expressed interest in the mindfulness training, with two participants then declining the training. One of these potential participants stated that she had participated in DBT at one point and that therefore she believed this training would be redundant for her; the other stated that he did not need to be any more aware of his problems. In each of these cases the trainer attempted once to address these issues. However, each of these individuals did not wish to participate, and their autonomy was respected. The other potential participants at this site initially agreed to participate in training, but later phone call follow-ups either resulted in no return call or an initial return call but then no further calls for scheduling or confirmation. The trainer left a total of three phone messages for each individual before discontinuing contact efforts, again to respect individual autonomy.

The second recruitment site was a government-funded community mental health center in the general Boulder, Colorado area. Each of the six participants who called about the training then agreed to an in-person interview and did arrive to this interview and began training. However, two of these participants ended training early (see Method, Participants for details). Each of these six participants who called in were clients of the satellite community mental health center in an area on the outskirts of Boulder.

All of the potential participants from the two Missoula, Montana sites (one privately owned, one government-funded community mental health center) agreed to meet for an initial interview, and then agreed to participate in the training. None of the participants dropped out early, although some did miss training sessions (see Method,

Participants for details).

At the first in-person meeting participants were screened for inclusion or exclusion by the trainer. The recruitment protocol included that any ineligible participants would be given information about other similar services available to them, and that any questions were to be answered at that time; this proved to be unnecessary, as no participants required exclusion. At this first contact the researcher also provided general orientation information regarding the requirements, content, and format of the training and associated research (e.g., questionnaire completion). Then, informed consent was obtained and any additional questions answered. Finally, the pre-test measures were administered and a general introduction to the training content (first training skill) was begun.

Training Format and Content

The individual mindfulness training sessions were then administered weekly by the same mindfulness trainer, who is also the author and PI of this study, using the format of hour-long individual sessions for each participant. Each session's activities were conducted in the following sequence: completion of pre-session measures (Life Events Update Form, SENS, PSEARD, Q-LES-Q-18), homework review, didactic skills lesson, discussion, behavioral practice, completion of post-session questionnaire measures (TMS, General Qualitative Measure), and suggesting and determining homework. A total of eight sessions were available to each individual, and the first and last sessions also included relevant pre- and post-test measures. The first and last sessions were scheduled with an extra half-hour's time to accommodate extra questionnaires, something also explained on the consent form. At times it was necessary for a participant to come in for

additional sessions in order to complete any of these unfinished tasks. If a participant missed a session, the session was rescheduled if possible and the mindfulness training began where it last left off.

The curriculum of the intervention (see Table 3 for a quick reference sheet, and Appendix J for the complete training manual) was compiled by the author/PI of this study and contains elements from multiple sources: Linehan and Heard's (1992) mindfulness module of DBT treatment for Borderline Personality Disorder; Segal et al.'s (2002) Mindfulness-Based Cognitive Therapy (MBCT), Acceptance and Commitment Therapy (ACT) (Hayes et al., 1999), and Mindfulness Based Stress Reduction (MBSR) (Kabat-Zinn, 1982). Each of the training sessions was structured with a step-by-step training in a skill topic, included discussion questions that related the skill to the experience of schizophrenia, and closed with in-session behavioral practice of mindfulness. The training sessions were designed to address one skill topic per session, but at times this was modified based on a participant's observed or reported needs. The skill topics' titles were: General Mindfulness/Introduction, One Thing at a Time, Observe, Describe, Mindfully Enjoying, Being Mindful Socially, and Review. Participants were given a copy of the skill sheet to take with them after the session. At the end of training participants were given hard copies of all skill topics and review sheets to take with them. Also, during each session the trainer hand-transcribed participants' responses to the skill topic's follow-up and discussion questions.

The training manual was tailored in multiple ways to address the experience of schizophrenia. First, the skill topics were chosen based on their apparent connection to the typical experience of schizophrenia (for more details, see discussion questions in the

training manual, Appendix J). The Enjoying skill was chosen to address and mitigate the experience of anhedonia primarily by attempting to add richness and clarity to experience and increase interest in the environment, and also therefore to increase quality of life; the Social mindfulness skill was chosen to address social challenges and therefore also to address anhedonia and quality of life; the Observe and Describe skills were chosen primarily to address and mitigate the distress related to positive symptoms and therefore increase quality of life; the One at a Time skill was chosen primarily to address anhedonia by increasing interest in the environment, therefore increasing quality of life; and, the Review skill was chosen to tailor the practice of mindfulness further to each participant's individual experience of schizophrenia. The connection to schizophrenia was most clearly addressed in the training manual by means of the discussion questions, which directly suggest multiple ways in which each skill may address some experiences of schizophrenia. In addition, the mindful concept of compassion was mentioned in the introduction to training in order possibly to address potential experiences of and reactions to stigmatization, invalidation of experiences, and self-blame related to living with schizophrenia (Geanallos, 2005).

Second, the skills were broken into short sequential sub-steps in order to make the skills easier to remember and more approachable. Also, frequent reviews and examples were provided for and generated with the participant in an effort to present the somewhat intangible concept of mindfulness as behavioral and skill-based, fitting into cognitive categories, and thus easier to remember and as something that could be achieved by an individual with schizophrenia, someone who typically has some difficulty with managing perceptions and stimuli (Heinrichs, 2005). Behavioral practices of mindfulness were

included in the training in order to make the material more skill-based, less mere verbal recall, and tied to tangible concepts that might be easier to process (Heinrichs, 2005). For example, within the Notice skill the subject of judgment was partially addressed with the participant holding an object and noticing judgments that arose about the object. Visual analogies were utilized to make skills more memorable, accessible, visualizable, and less cognitively abstract. Worksheets and hands-on exercises were included to make mindfulness more understandable and tangible, again to address the likelihood of schizophrenia-related difficulties with multiple abstract concepts.

Finally, homework was suggested in an additional attempt to make activities skill-based. The homework sheet (Appendix K) was developed by the PI and modeled after Bellack, Mueser, Gingerich, and Agresta's (1997) training manual for teaching social skills to individuals with schizophrenia. Questions include: "what went well," "what challenges occurred," and "what happened?" Participants were asked to complete this sheet before each session, but this was not required. If it was completed, the sheet was reviewed in session, with any additional responses or feedback hand-transcribed by the mindfulness trainer. If it was not completed, the trainer attempted to elicit an experience from the past week that the participant could discuss related to the homework sheet.

Although participants with psychosis in previous mindfulness interventions have not reported iatrogenic effects (e.g., Chadwick et al., 2005; Gaudiano & Herbert, 2006), the possibility of iatrogenesis was guarded against by following Chadwick et al.'s (2005) in-session guidelines; deep absorption was avoided by offering guidance every few minutes; gentle reminders and directions were provided; breaks were offered; homework was not required; and, prolonged silences (no more than 30 seconds for the research

intervention here) were avoided. The participants were also advised to practice these guidelines during their out-of-session mindfulness practice.

In addition, several other guidelines were employed to address any possibility of overstimulation or frustration and to tailor training to these individuals. First, the agenda for training sessions was flexible as needed. For example, if a participant came into the session reporting active and distracting distress, time was made at the beginning of the session for the participant to talk about the distress and relate it to mindfulness, rather than immediately beginning the questionnaire completion. Sessions were also tailored to match the current level of attentional ability, apparent ability to learn the material, and history of each participant. For example, if a participant appeared to be having a difficult time focusing on a particular day, the trainer would move more slowly through the skills steps. Breaks were offered throughout the session, and the participants were consistently made aware that they could choose to leave or take a break at any time they wished.

Also per Chadwick et al.'s (2005) directives, any troubling symptoms of psychosis or other forms of in-session distress were immediately assessed and addressed. If possible these experiences were tied to mindfulness as providing one option for mitigating the distress of the experience. For example a participant experiencing a compelling hallucination or delusion was encouraged to discuss this process of thinking and feeling, validated in his or her experience, and gently guided toward mindfulness techniques, checking out the experience with evidence or allowing the experience to occur without reacting immediately to it. The consent protocol also included that participants who experienced severe distressing psychosis or indicated possible harm to themselves or others would have their case manager contacted and be given the option to

leave the training session for the day; however, there were no such occurrences.

Efforts to reduce attrition included reminder telephone calls before sessions, maintaining rapport, and offering a graduation certificate. Efforts to increase compliance with the session trainings consisted of offering paper copies of the skills and worksheets, offering refrigerator magnets that were reminders of skills and mindfulness concepts (e.g., "center back" was one participant's way of remembering mindfulness, and this quotation was displayed on the magnet), and eliciting and suggesting an out-of-session homework activity at the end of each session.

Data Analysis Methods

Quantitative Data Analysis

Scores on the quantitative measures (SENS 1 Anhedonia symptoms, SENS 2 Anhedonia distress, PSEARD Positive symptom distress, Q-LES-Q-18 Quality of life) for each participant at each data collection point were entered into Excel spreadsheets and an SPSS data file. Scores on the mindfulness ability measures (TMS, FFM) were also entered into this Excel spreadsheet and SPSS data file. The six quantitative items from the Exit Interview measure were entered into a separate spreadsheet. Data checking and cleaning were conducted by re-reviewing data entry to ensure accuracy.

Summary descriptive statistics were computed and examined for anomalies and extreme outliers. Preliminary exploratory data analyses were then conducted by computing frequency distributions for each variable. Line graphs for each participant were generated in Excel, where each participant's scores for each dependent variable measure (PSEARD distress, SENS 1 symptoms, SENS 2 distress, Q-LES-Q-18) and for each mindfulness ability measure (TMS, FFM) at each assessment point were plotted.

These line graphs served two purposes: to organize the data visually, and to identify trends for each participant (positive, negative, or neutral) for each quantitative dependent variable and mindfulness measure. Trends were determined by visual analysis, and also by calculating a trend line, using linear regression. Trends were analyzed for a participant's scores on a measure if at least two data points were available. In instances where only two data points were available, an R^2 value could not be calculated and visual inspection determined the direction of these trends. In instances where only one data point was available, this "no trend" was considered as missing data in any analysis that referenced a trend graph. A minimum R^2 value of .10 was chosen as the requirement for a trend to be considered either positive or negative (not neutral). This value was chosen as an additional standard upon which to base determinations of trends and represents a somewhat arbitrary criterion for determining the meaningfulness of a trend; meeting this value did not imply statistical viability or importance.

These "linearized" trend types for all participants, for all outcome variables' measures, were entered into a separate data spreadsheet (e.g., Participant 1 evidenced a positive trend on the SENS 2, a negative trend on PSEARD distress, a positive trend on the SENS 1, and a neutral trend on the Q-LES-Q-18). The trend line designators indicated clinical improvement or deterioration trends, and were labeled as positive, negative, neutral, or "no trend" if required data were missing; a "fluctuating" (inconsistently alternating up and down score fluctuations) trend line designator was not chosen as an option for this study because of interest in assessing improvement or deterioration. Positive trend lines were designated with a +1 value, negative trend lines with -1, and neutral with 0. These numbers were then utilized to calculate summaries of trends across

participants and measures by adding the +1, -1, and 0 values across each row (participants) and down each column (measure). Exit interview data were also evaluated by calculating means and standard deviations for each participant and each Exit Interview quantitative question.

Hypothesis 4 regarding the predicted association of mindfulness ability (TMS, FFM) with the outcome variables of anhedonia (SENS 1, SENS 2 distress), quality of life (Q-LES-Q-18), and positive symptom related distress (PSEARD distress) was addressed with manually-calculated "association" scores (labeled as such in this research). The small sample size (fewer than 10 completing participants) indicated that even a non-parametric analysis such as a Spearman's rank-order correlation would be inappropriate here.

This analysis was conducted by comparing the trend (positive, negative, or neutral) for the outcome measure (e.g., PSEARD) to the trends on the mindfulness measures (positive, negative, or neutral on the TMS or FFM) for a given participant (graphs and trend lines were generated in Excel for TMS scores, graphs only for FFM scores, which had only two data points). In clinical terms it was predicted and expected that when score trends on the mindfulness measures improved that score trends on the dependent variables' measures would improve. It was <u>not</u> predicted, and considered unexpected when score trends on the mindfulness measures remained static and score trends on the dependent variables' measures remained static. It was also not predicted, and considered unexpected when score trends on the mindfulness measures worsened and trends on the dependent variables' measures worsened. It was not predicted, and considered unexpected when score trends on the mindfulness measures worsened and

score trends on the dependent variables' improved or remained static. Finally, it was not predicted, and considered unexpected when score trends on the mindfulness measures improved and score trends on the dependent variables' measures remained static or worsened.

If the predicted association occurred between the trends (e.g., PSEARD clinically positive and TMS clinically positive), then that cell (e.g., PSEARD x TMS) for that participant was given the designator of "expected." If the predicted association of trends did not occur (e.g., PSEARD clinically positive and TMS clinically negative) the cell for the participant was given the designator of "unexpected." For any missing data on the FFM for a participant, a trend graph could not be generated (there are only two data points for the FFM and at least two were necessary to determine a trend visually; this "no trend" was regarded as missing data) and therefore association designators could not be calculated for that participant's FFM measures' associations with the four outcome variables; these cells were regarded as missing data. For the TMS score for one participant that consisted of only one data point, a trend graph could not be generated and therefore association designators could not be calculated for that participant's TMS measures' associations with the four outcome variables.

This was done for all participants, with comparisons conducted between all four dependent measures' scores and the two mindfulness measures. Then, the sums for "expected" and "unexpected" cells were calculated for each outcome measure/mindfulness measure group (e.g., PSEARD x TMS, PSEARD x FFM; Q-LES-Q-18 x TMS, Q-LES-Q-18 x FFM, and so on), so that in the end, eight proportions of expected to unexpected associations were available (e.g., PSEARD x TMS = 0 as

expected, 9 unexpected; Q-LES-Q-18 x FFM = 1 as expected, 7 unexpected). These ratios were converted into percentages by dividing the "as expected" cell sum by the sum of both expected and non-expected relationships, omitting missing pairs (e.g., Q-LES-Q-18 x FFM = 1 as expected divided by 8 = .13 = 13%). If the resultant percentage was 60% or more, the relationship was considered to be strong enough to warrant further investigation because it preliminarily indicated that more than half of the associations occurred as predicted. However, no relationships were investigated further or reported because no percentage was over 60%.

Finally, when discussing results from quantitative data analyses, qualitative data were referenced at times to enrich understandings about some of the quantitative data's variations and results. These postulated interpretations were presented and treated only as hypotheses, with possible indications for future research.

Qualitative Data Analysis, Overview and Data Coding

The qualitative data analysis process was guided by the grounded theory (Glaser & Strauss, 1967) and phenomenological study (Polkinghorne, 1989) traditions. Both traditions served as guides because this research was hybrid in nature. This research endeavored to study the meaning of an experience (the goal of phenomenological study), the "experience" of being an individual with schizophrenia who is proceeding through this mindfulness training. This research also endeavored to study how people act and react to a phenomenon in a particular situation (the goal of grounded theory), in the "phenomenon" of mindfulness training (Creswell, 2009).

Again, because this research was "hybrid," (a term defined here for this research as using quantitative and qualitative methods and also using multiple qualitative research

methods), neither of the these qualitative tradition's protocols could be fully implemented because time with the participant was also apportioned to quantitative data collection and mindfulness training, leaving insubstantial time to complete thorough and complex interviews with participants. However, applicable and available processes and directives were referenced and utilized and at times modified to meet the limitations of the hybrid research design. For example, in a phenomenological study, the data are typically gathered through long interviews with participants (Polkinghorne, 1989). In the present research participant comments, responses, and feedback were gathered, but long interviews were not undertaken, as the sessions were primarily utilized for imparting the mindfulness skills.

As another example, in grounded theory the primary goal is a theory with specific components: a central phenomenon, causal conditions, strategies, conditions and context, and consequences (Strauss & Corbin, 1998). Again due to the primary goal of teaching mindfulness, qualitative data were not collected comprehensively from participants, and identifying all of these components was not possible. However, the "open coding" process of grounded theory was utilized and final analyses did attempt to address a central phenomenon, per grounded theory directives (e.g., through "selective" and "axial" coding), but it is almost certain that not enough data were available to identify all relevant contexts, conditions, strategies, and consequences. The possible limitations and benefits of this approach are analyzed in the Discussion section.

The qualitative data analysis process began with the PI first typing participants' verbal and written comments from qualitative measures and participant feedback that she had hand-transcribed during the training sessions, then checking for and correcting any

transcription errors. Each sentence or sentence portion from a participant was considered a separate data unit unless the directly following sentences re-stated the same content or clarified, deepened, or gave an example; in this case these combined sentences were considered one data unit. Data units were denoted with indicators to provide contextual information (from which measure or skill area did the comment originate, and, if applicable, from which question or area within that measure or skill area).

Per grounded theory, "researcher immersion" (Strauss & Corbin, 1998) then took place by means of the PI/trainer reading notes and examining the data multiple times to get the overall feel for their scope and meanings. Re-immersion also took place multiple times throughout the entire process of analysis. Then, through the "open coding" process of grounded theory (Strauss & Corbin, 1998), "categories" were induced directly from the data and then designated with a "code," which for this study was a four-digit number. Determining a coded category was done by identifying the phenomenon within the unit by asking, "What kind of thing is being described?" and condensing the essential point of the statement into a descriptive category (Creswell, 2009; Polkinghorne, 1989; Strauss & Corbin, 1998). For example, the data item/participant sentence of "In my past I've been through domestic abuse" was placed into a category of "assault/abuse in past" that was coded as 1550.

Categories were placed into one or more of each of the three qualitative realms defined by the research questions: What are the individual's *reactions* to training and attempts at using mindfulness? What experiences *related* to mindfulness/training skills might affect the individual's response to the intervention? What *general* life experiences might affect the individual's response to the intervention? When each category was

assigned a code number, the code reflected in its first digit the research question realm into which the item was designated. Reactions to training were 3000-3999 codes, "related to training" experiences were 2000-2999, and "general experiences" were 1000-1999. Each data item had the possibility of being assigned a maximum of three codes (one each from each research question category). See Table 4 for a final listing of categories and associated codes. Note that analyses of qualitative data focused mainly on the "reactions to training" codes.

The PI continued gathering data and coding/categorizing this data until it appeared preliminarily that "saturation" might have been reached. This is a grounded theory expression that refers to the point at which no new data appear to provide any further insight into the coding categories (Creswell, 2009; Strauss & Corbin, 1998). Saturation is assessed as the researcher determines coded categories and constantly compares these categories to new data in order to determine if further data call for a change in or addition to the categories. Therefore, determination of saturation is a subjective task. In addition, it is always possible that more cases could add more insight into the coding categories, unless 100% of the population is included in the research, and there were concerns that the small sample size at this point (six participants) made true saturation unlikely.

These concerns were addressed in multiple ways. First, the PI consulted with the committee member who had the most experience in qualitative research, sharing the category coding process as it proceeded, and responding to feedback and to different or similar viewpoints shared by this committee member. Second, after the first participants completed training, the dissertation committee met and determined that the likelihood of

saturation might be enhanced by adding a minimum of an additional three participants to the research; in fact, four additional participants were included. Therefore, the end of data gathering was ultimately determined both by preliminary assessment of possible and potential saturation as well as by the requirement of this specific minimum number of participants. Third, a second coder was added to assess the data for the second wave of participants in order to enhance the objectivity of the coded categories and to allow an assessment of inter-coder reliability for the last four participants. Despite these safeguards, a limitation of this research remains in that it is still possible that adequate saturation was not reached and that additional participants would have provided data that could have changed the results and conceptualizations.

The PI then checked for "drift" in the definition of codes, a situation where the process of coding can change the codes themselves so that a transcript read at the beginning of coding might be coded differently if the transcript were coded last (Miles & Huberman, 1994). The drift check for this research consisted of the PI re-coding the first half of the initially coded transcripts, thus assessing a form of her own self-consistency over time. Finally, the PI presented the list of category codes to the committee member specifically trained in qualitative data analysis (including grounded and phenomenological theory) who then approved this list for use by the second coder (referred to as Coder 2). This process yielded 110 total coding categories divided among three areas (54 "reaction to training" codes, 38 "related to training" codes, 18 "general experience" codes).

Inter-coder Consistency for the Qualitative Data. The research design for this project was modified halfway through this research project to include evaluating inter-

coder consistency for the remainder of the qualitative data collected in an attempt to lessen some of the subjectivity inherent in data coding. The data from the last four participants, recruited and trained in Missoula, MT, were subjected to the inter-coder consistency procedure described here. First, the PI (Coder 1) trained Coder 2 (a doctorate in clinical psychology who has experience working with qualitative data) in the process of examining a piece of data and determining its "essential phenomena;" she then worked through practice sessions with Coder 2 until that coder reported that the process was well understood. The coding was directed by a collaborative goal of achieving stronger data analysis through inter-coder comparison, and Coders 1 and 2 discussed this goal. Then, Coder 2 was given a copy of the typed data items from the Missoula participants and the code list, and she proceeded to go through each data item and assign it between one and three numbered codes (a maximum of one from each area). If Coder 2 recognized important content but did not see an appropriate code on the list, she was to create a new category/code appropriate to this data item, add it to the list, and record this new numbered code next to the data item.

Once the coding had been completed by both coders, the PI's research advisor compared the two coding versions by calculating Cohen's *kappa*. These coefficients are provided in Table 5. Across all codes, the Cohen's *kappa* coefficient was .558; indicating fair to moderate agreement (Landis & Koch, 1977).

Prior to being made aware of the reliability coefficients, the coders met to communicate and discuss their understanding of the category codes, data items, and coding process, with an eye toward improving agreement and reaching consensus. Discrepancies between assigned codes were discussed, and final codes were assigned to

data items based on this final consensus coding. In the process of consensus coding some coding categories were added or modified, resulting in a final coding category list containing 119 coded categories (63 "reaction to training" codes, 38 "related to training" codes, 18 "general experience" codes) (Table 4). The PI then referred to this final coding category list and reviewed and re-coded the first six (Boulder) participants' data. Over 1500 units of data were coded through the two-coder process, and over 3000 units of data were coded overall. The latter formed the basis for the qualitative data analyses.

Qualitative Data Analysis Methods

The qualitative data's coded categories were then utilized first to analyze each individual participant's experience in mindfulness training (within each participant), and then to analyze the participants' combined experiences in mindfulness training (across participants). To address within-participant coded category endorsement frequencies, an Excel spreadsheet was created in which all participants were listed across one axis (columns) and all codes were listed down another axis (rows). The times a participant endorsed a code were summed and entered in the related cell (Participant x Code). Then, for each participant the mean was calculated for the average number of times the participant endorsed a code; a standard deviation was also calculated (see *M* and *SD* at the bottom left of Table 6, with these calculations listed for each participant across the respective row). Separate means and standard deviations were calculated for each participant because each participant had completed different numbers of sessions and therefore had different frequencies for code endorsement. In addition, each participant theoretically had different responding characteristics, and therefore ipsative comparing of the participants to their own data patterns could provide useful information.

For each participant the codes that were endorsed at a frequency of more than one standard deviation above the mean of total code endorsement for that participant were identified and considered to be the most highly salient and interpretable ones. This cutoff computed for each participant was an arbitrary one that seemed reasonable for providing a manageable amount of potentially interpretable information. Codes that were borderline (endorsed one less time than this cutoff value) were also identified, but were noted as being below the cutoff. Then, these data were organized in a table (Table 7) that lists each participant with his or her most frequently-endorsed coded categories.

In order to address the endorsement of codes across participants, codes were summed in two different manners. First, an Excel spreadsheet was again created in which all category codes were listed down one axis and all of the participants listed across the other axis. The PI then referenced the spreadsheet for the individual participants' code endorsements, and, if a participant endorsed a code at any time throughout the training, a score of 1 was assigned to that cell. A single code, then, could have a maximum frequency of 10 (because there were 10 participants) and a minimum of zero. Actual frequencies of that code as endorsed by the participant were not entered because it was unknown as to whether the frequency of the code as reported by the participant was an actual reflection (an ordinal measure) of the importance of the code. (The use of codes was reduced to presence vs. absence). For example, the high frequency of a code for a participant could be due to a tendency toward verbosity, verbal redundancy and repetition, or reflect having completed more sessions than other participants.

Working from this spreadsheet, sums were then calculated for how many participants reported any occurrence of the code at any point throughout training. If at

least 80% of participants endorsed a code, then it was considered to be particularly salient and central and was given additional attention when the PI moved to the next qualitative analysis step of determining themes. Eighty percent was chosen as a cutoff in order to narrow the volume of the most salient themes to an interpretable number.

The most frequently occurring codes were also determined across participants by combining the most frequently endorsed coding categories for each participant within each research question realm, with an emphasis on the "reaction to training" group of codes. Referencing Table 7, listing the most frequently-endorsed codes by participant, the "top" five "reaction to training" and "related to training" codes and "top" three "general experience" codes (three were identified because there were fewer of these codes from which to choose) were identified for all participants (13 codes per participant). These represent the 13 most frequently-endorsed codes for that participant. Therefore, across the ten participants a total of 130 codes were amalgamated. The number of times each code appeared within this group of 130 codes was summed. The total number of times each code appeared also indicated the total number of participants who endorsed the code as a "top" code, because each code could only appear once for each participant. Each "top" code and its sum across participants were then listed (see Table 8). Note that although "top" codes for all three research question realms are listed, primary emphasis was given to the "reaction to training" codes.

From this list, the top three codes, those that were endorsed by the most number of participants and so were "top" codes, were identified within each research question category (see bolded and top three listed within each research question realm in Table 8), for a total of nine codes. Based on their apparent clinical utility and relevance to

treatment outcome, “reaction to training” coded categories (3000s) were assigned the highest interpretive value and weight, “related to training” coded categories (2000s) were assigned the next highest interpretive value and weight, and “general experiences” (1000s) were assigned the least interpretive value and weight.

To summarize this process, the coded categories that were endorsed the most frequently by each participant were combined, and then within this data set, the top three coded categories for each research question realm were identified, thus representing the coded categories that were most highly endorsed by the highest number of participants. These, especially the top “reaction to training” coded categories, were given additional attention and considered particularly salient, especially within the thematic and conceptual analysis process.

The PI then identified “central phenomena,” a grounded theory term that describes themes or central categories that emerge from assessment of the coded categories (Creswell, 2009). The most frequently endorsed codes (Table 8) were first considered as themes. Other instances of possible themes/phenomena were also considered, even if they were not among the most frequent. These were induced from the PI’s reference to notes on the Trainer Mindfulness Rating Forms, researcher memos written during training and analysis, her associated experience-based impressions of salient themes and phenomena, and review of the specific feedback from participants regarding what was helpful and what could be improved in the training. However, these themes were assigned minimal interpretive value, the least of all information derived from qualitative data, and were viewed as considerations and subjective postulations

rather than as formal empirical results (see Appendices L and M for a consideration of these items).

This research study's version of grounded theory's "selective coding" (Strauss & Corbin, 1998) then took place; a conceptual analysis was developed in order to tie together and relate themes, phenomena, and other observations and data. The reference here is to this study's "version" of selective coding because, as previously discussed, a fully developed conceptual analysis was not possible due to the hybrid nature of data collection and the associated inability to utilize qualitative data analysis methods thoroughly.

The conceptual analysis was determined by referencing and integrating multiple qualitative and quantitative data sources, conceptually, quantitatively, and visually. The PI followed grounded theory analysis directives, where a certain coded category is chosen as a "fulcrum" and other data are analyzed in relation to this selected category in terms of context and contributing factors. This overall conceptual analysis model is described in the Discussion section and also depicted in a flow-diagram form. The PI concluded that the best fitting conceptual analysis model had been reached when two things had occurred. First, through "negative case analysis" (Creswell, 2009) the PI deliberately searched for cases and instances that did not fit into the conceptualization. Although it was determined that there were instances that did not completely fit the overall conceptualization, when the vast majority of cases and data were considered in terms of how they fit into the model, they clicked in and fit easily and apparently obviously. Second, when reviewing and being re-immersed in the data, the PI

experienced an informed sense that a substantial amount of the participants' experiences related to the research questions had been described in the overall conceptualization.

To answer the ultimate question "Did we get it right?" (Creswell, 2009) more confidently, the scientific rigor of this qualitative research was assessed. Despite this attention to enhancing scientific rigor, this hybrid study had many limitations which are further explored below and in the Discussion section. This research was in part guided by standards that are the qualitative tradition's solutions to the quantitative analysis standards of validity and reliability. Although many terms and definitions have been offered either to parallel quantitative validity and reliability or describe the unique value of qualitative data analysis (e.g., Lincoln & Guba, 1985), the ultimate function of these terms is to translate them into practices that can be utilized to enhance the likelihood that conclusions are credible and dependable (Creswell, 2009).

These practices have been reviewed and compiled by Creswell (2009), who advises the use of at least two of the following: prolonged engagement and persistent observation in the field; triangulation (from multiple sources, methods, or theories); debriefing or peer review (researcher consultation with others); negative case analysis (looking for cases and elements of data that do not support conclusions); clarifying researcher bias (self-monitoring and consultation); member checks (returning to participants to ask if conclusions fit their experience); rich, thick description (including context); and external audits. In addition to these recommendations, Creswell also states that scientific rigor can be enhanced additionally by clearly explicating the research purpose, method, and design.

In this research study, triangulation, debriefing, clarifying researcher bias, negative case analysis, and thick description were utilized. Triangulation took place through the use of multiple types of measures, procedures, and questionnaires. Debriefing took place by the PI consulting with multiple dissertation committee members. Researcher bias was self-monitored by the PI throughout the study and also reflected upon repeatedly in consultations with dissertation committee members. Negative case analysis took place in that cases that did not fit with iterations of conceptual analyses were purposefully considered. Thick, rich description occurred as a natural by-product of grounded theory and phenomenological analysis, which elicit themes, phenomena, and contextual and relational information and explanations. Finally, the research questions listed above drove this analysis, and the method and design were clearly explicated.

Possible sources of bias were identified and attempts made to address them as the result of this process. The trainer noticed an intervention proficiency bias; as training progressed she assessed herself as becoming more proficient in administering the training. The trainer expected this bias to occur and attempted to address it prior to beginning training by preparing and practicing for training by reviewing training and mindfulness materials often, mentally role-playing sessions, practicing mindfulness herself, and considering and preparing for circumstances and events that might occur in training. Despite this, she noted that her self-assessed proficiency appeared to increase naturally as she became more familiar with training administration.

Interview bias was also a likely possibility. To address this, the interviewer (trainer) utilized mindfulness to notice any thoughts or biases that arose during the interviewing and measurement process and to proceed carefully with interviewing and

measurement by attempting to re-shift to a neutral cognitive stance and avoid any subtle or obvious demand characteristics that might be evidenced, for example through her body language, phrasing, or verbal intonation. Outside of training the interviewer consulted with dissertation committee members, and each week she participated in mindfulness meditation for blocks of time, as well as on-the-fly mindfulness as training-related thoughts arose during the week. In this way she assessed her bias within and outside of training and attempted to return to a neutral cognitive stance or at least keep conscious awareness of any bias and to use care in attempting to interact with participants as neutrally as possible. In addition the interviewer frequently stated to participants that there were no right or wrong answers to queries in the sessions or the questionnaires, and she asked the participants to try to be as honest as possible because it was important that the participants were as frank as they could be.

However, it is impossible to notice and correct for all interviewer bias, so it is unavoidable that this bias would be likely to be evident at times, and it may have influenced participants' reports and progress. Throughout this process the interviewer noticed her varying biases that ranged from expecting certain responses from certain participants to expecting overall negatively or positively valenced responses. As much as possible she addressed these expectations as discussed above.

Reporting bias was also a concern because, despite consultation with others, the trainer (author) herself ultimately worked to pull the data together into a cohesive integration. This was addressed in part by utilizing another coder for a portion of the data, although inter-coder consistency was moderate and therefore bias was not completely eliminated through this process. Also, the trainer again used mindfulness to notice bias

that arose and attempted to return to a more neutral cognitive stance, or at least keep the bias in awareness as results were being assessed. When any biases were noticed, she re-reviewed data from a shifted viewpoint and continually returned to review data and conceptualizations, after checking in to assess bias and expectation. She also reviewed data and conceptualizations frequently, regardless of recognized bias, in an attempt to allow multiple viewpoints from different times and psychological states.

Selection bias also occurred because participants were volunteers, and therefore those who called in and then participated in the research were likely to have characteristics that differ from those who did not call in or participate. This bias was not avoidable, due to the research limitation of inaccessibility to a large population from which participants could be randomly selected or assigned. Therefore, results from this study can only apply to similar participants who volunteer for research such as this.

Measurement bias may also have occurred, due to participants possibly feeling as though certain answers were acceptable or desired. This was somewhat addressed by the trainer stating in each session that the most useful thing was to provide answers that were as honest as possible, as discussed above under demand characteristics. This was also somewhat addressed through the trainer's monitoring and adjusting of her presentation in order to guard as much as possible against sending messages guiding participants toward certain answers or feedback. Also, insensitive measure bias may have occurred, in which a measure was unable to detect and capture all appropriate data. This was guarded against by utilizing a variety of quantitative and qualitative measures, and by using phrases in some measures that asked "is there anything else?" Again, despite these safeguards, it is

likely that measurement bias exists in this research, because it, like all bias, is to some extent unavoidable.

Overall, the attempt at maintaining scientific rigor and thoroughness was a process that occurred continuously, as data were analyzed in a spiral and also "zig zag" process (Creswell, 2009), where coding categories, themes, memos, and conceptualizations were continuously questioned, returned to, re-assessed, and adjusted in order to account for multiple sources of data, contexts, changing conceptualizations, monitoring of expectations and assumptions, negative case finding, and other researchers' perspectives. This process was partially guided by the following questions: Have research questions been clearly and thoroughly answered? Are there any remaining ambiguities? Could analysis be continued? Is analysis coherent and integrated, yet not oversimplified? Are phenomena illuminated by the analysis? (Creswell, 2009).

Again, it is important to note that despite attention and adherence to these standards to the extent possible, the hybrid design of this study did not allow full adherence to qualitative research design principles, procedures, and methods. As a result, the full scientific rigor of qualitative analysis could not be upheld, thus significantly diminishing the ability to say that the findings here represent all there was to know, or represent appropriately what there was to know. In addition, bias is unavoidable in research, and some certainly occurred here. Please see the Discussion section for further description of this research study's limitations.

Data Analysis Methods Summary. Similarities and differences both within and across individuals were evaluated, using both quantitative and qualitative data. Within-case analyses were conducted by individually graphing and assessing quantitative

questionnaire data and later referencing qualitative data to deepen some of the possible understandings about certain variations and results. Within-case analyses were conducted for qualitative data by determining most frequently occurring codes for each individual. Across-case analyses for the quantitative data were conducted by assessing combined trends for all participants in order to determine any trends for each measure and across participants. Across-case analyses for qualitative data were conducted by determining the most frequently occurring qualitative codes across participants and determining codes endorsed by the greatest number of participants, then referring to these codes when determining qualitative themes and a driving conceptual analysis. Across-case analyses for the qualitative data were also conducted by exploring specific feedback comments from participants about what was helpful about the training and what could be improved and also by referring to these themes and comments when determining qualitative themes and an overall conceptual analysis. Of the qualitative data, "reactions to training" were given primary interpretive value and weight. In addition, frequently occurring or salient themes were identified and suggested based on trainer memos and rating forms (Appendices L and M) and were referred to when determining an overall conceptual analysis, although these were deemed as having minimal interpretive value and are primarily included in the Discussion section in relation to treatment indications.

Clinical utility was evaluated by reviewing, summarizing, and comparing qualitative themes and quantitative trends in order to determine within- and across-case reported improvement, decline, or stasis in quality of life, perceived distress related to positive symptoms, negative symptom experience and distress, and reported levels of other functioning and outcomes.

Results

Overview

The treatment development and pilot nature of this study necessitated data collection and analyses that were primarily focused on understanding the participants' experiences (individual and overall) in training, and draw from both qualitative and quantitative data. These analyses of participant experiences were intended to be utilized to develop and refine the training manual and intervention process. See Table 9 for a summary of quantitative results, Table 10 for a summary of the coded categories' frequency analysis results, Table 11 for a summary of specific participant feedback, and Appendix M for a summary of the trainer's perspectives. Each summary table also contains associated examples of indications for possible training development.

Quantitative Data Analysis Results

It was hypothesized that clinically positive trends in scores would be visually evident on line charts plotting dependent variables versus time (training sessions) for all participants. Graphs are presented in the text in thumbnail form (Figures 1-4). Table 12 provides supplementary information to assist in reviewing these figures. The dependent variables include distress related to anhedonia, quality of life, distress related to positive symptoms, and anhedonia, and are measured by the SENS 2, Q-LES-Q-18, PSEARD, and SENS 1. Visual inspection of Figures 1-4 indicates a variety of trajectory shapes. Although the analyses here are confined to the analysis of upward-sloping, downward-sloping, or flat or no-trend lines, the observed configurations include saw tooth patterns (up, down, or level), inverted V's and V's, dual-hump, and others. In addition, the graphs contain many spikes and dips, suggesting the role of positive or negative events that

occurred outside of the training sessions, or possibly behavioral and psychological gains and retreats during particular weeks. The following are summaries of overall slopes.

Results indicate that this hypothesis of clinically positive trends was not fully supported by the data; not every participant showed evidence of these positive trends on every measure. However, the trend analysis did indicate that across scores and across participants, the majority (six out of ten) of participants evidenced an overall positive score trend (Table 13). Across participants, the SENS 2 (anhedonia distress) and Q-LES-Q-18 measures showed overall positive trends, while the PSEARD distress and SENS 1 (anhedonia behavior) showed negative trends overall. See Table 14 for a summary of the trends for each measure.

On the portion of the SENS that measures distress related to anhedonic behaviors (SENS 2), seven out of ten participants evidenced clinically positive trends (70%), zero negative (0%), and three neutral/flat (30%) (see Figure 1 below). On the Q-LES-Q-18 (see Figure 2 below), three out of ten participants (30%) evidenced a clinically positive score trend, one evidenced a negative trend (10%), and six evidenced a neutral/flat trend (60%).

On the PSEARD, two out of ten participants evidenced a clinically positive trend (20%), four out of ten participants evidenced a clinically negative trend (40%), and four evidenced a neutral/flat trend (40%) (see Figure 3 below). On the SENS portion that measures behaviors related to anhedonia (SENS 1), three out of ten participants evidenced a clinically positive trend (30%), four negative (40%), and three neutral/flat (30%) (see Figure 4 below).

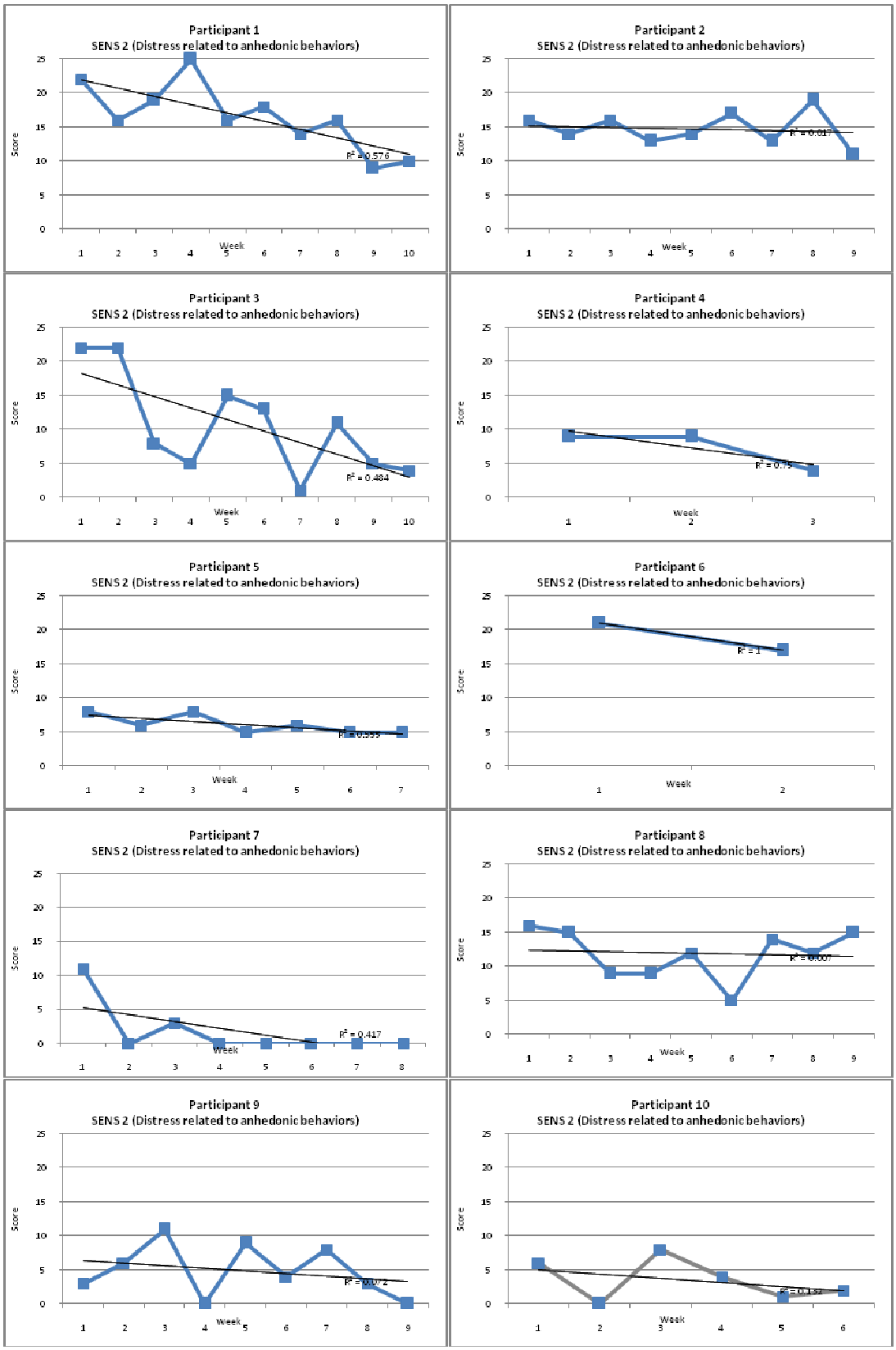

Figure 1. Trend graphs for distress related to anhedonia.

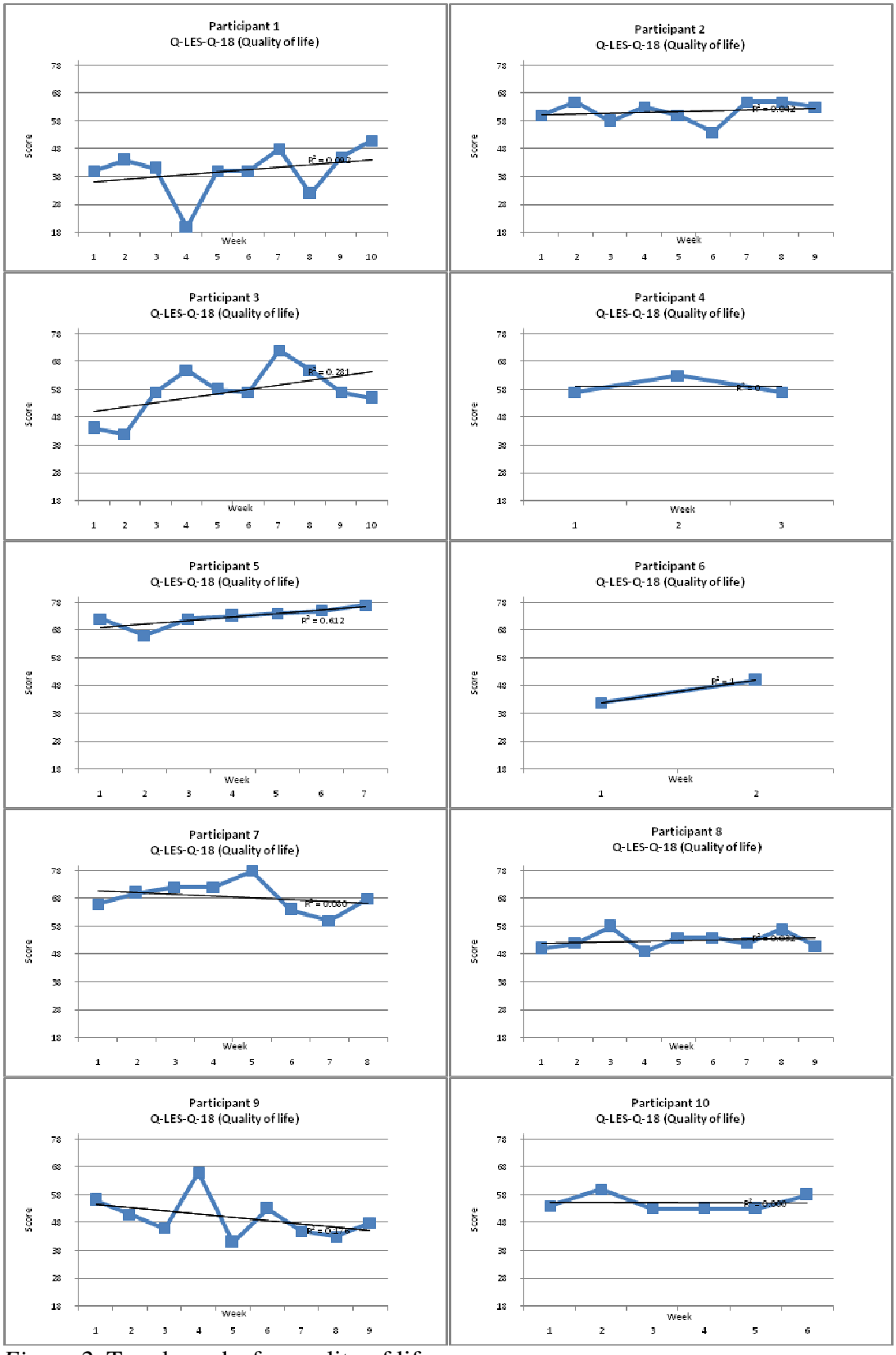

Figure 2. Trend graphs for quality of life.

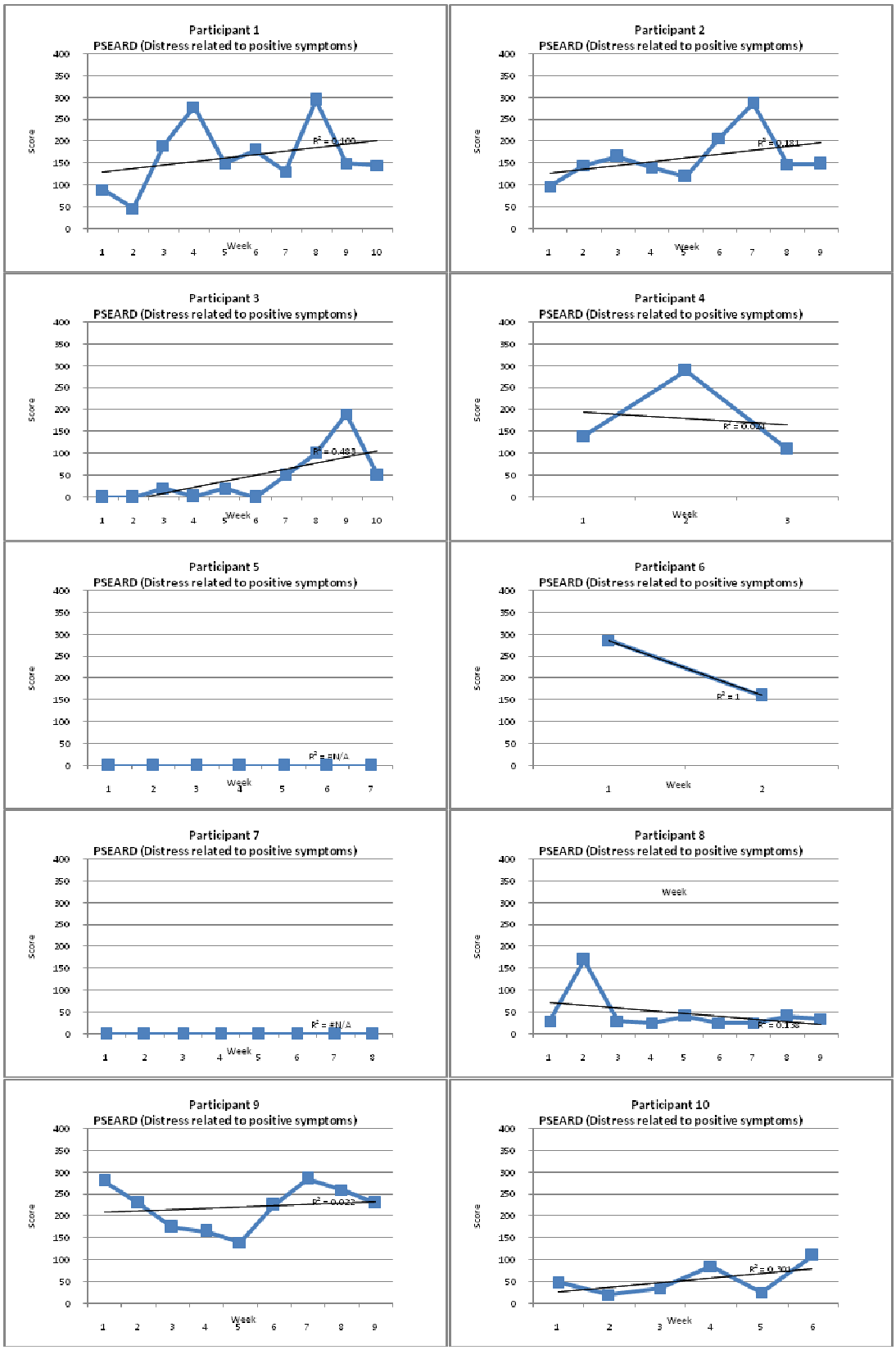

Figure 3. Trend graphs for distress related to positive symptoms.

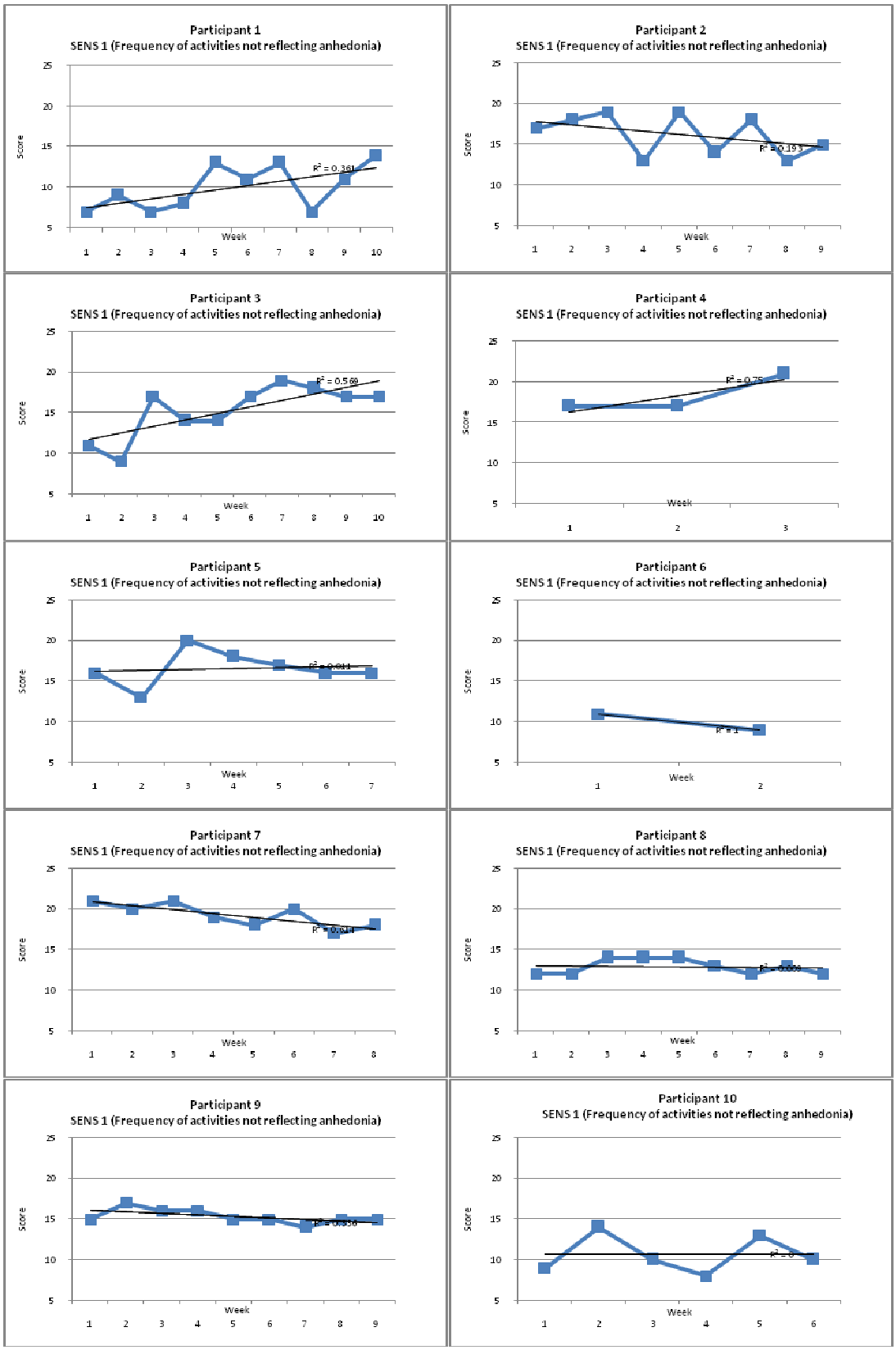

Figure 4. Trend graphs for anhedonia.

Summed across all measures for all participants, 60% of participants evidenced more positive than negative or neutral trends, 20% evidenced more negative than positive or neutral trends, and 20% evidenced more neutral than positive or negative trends. See Table 13 for these results.

Additionally, it was predicted that it would be possible to reject the null hypothesis that there is not a relationship between upward trends in mindfulness ability between pre-test to post-test and across-time trends in dependent variables (levels of Distress related to anhedonia, Quality of life, Distress related to positive symptoms, and Anhedonia). It was predicted that increasing levels of mindfulness ability, as measured by the slope of score trends from the Toronto Mindfulness Scale (TMS) (see Figure 5 below) and Five Factor Mindfulness Questionnaire (FFM) (see Figure 6 below) would be associated with more clinically positive trends on the SENS 2, Q-LES-Q-18, PSEARD, and SENS 1. Analyses of these pairs of trends did not indicate any interpretable associations between score trends from the measures of mindfulness ability and trends on the dependent measures (see Tables 15 through 18).

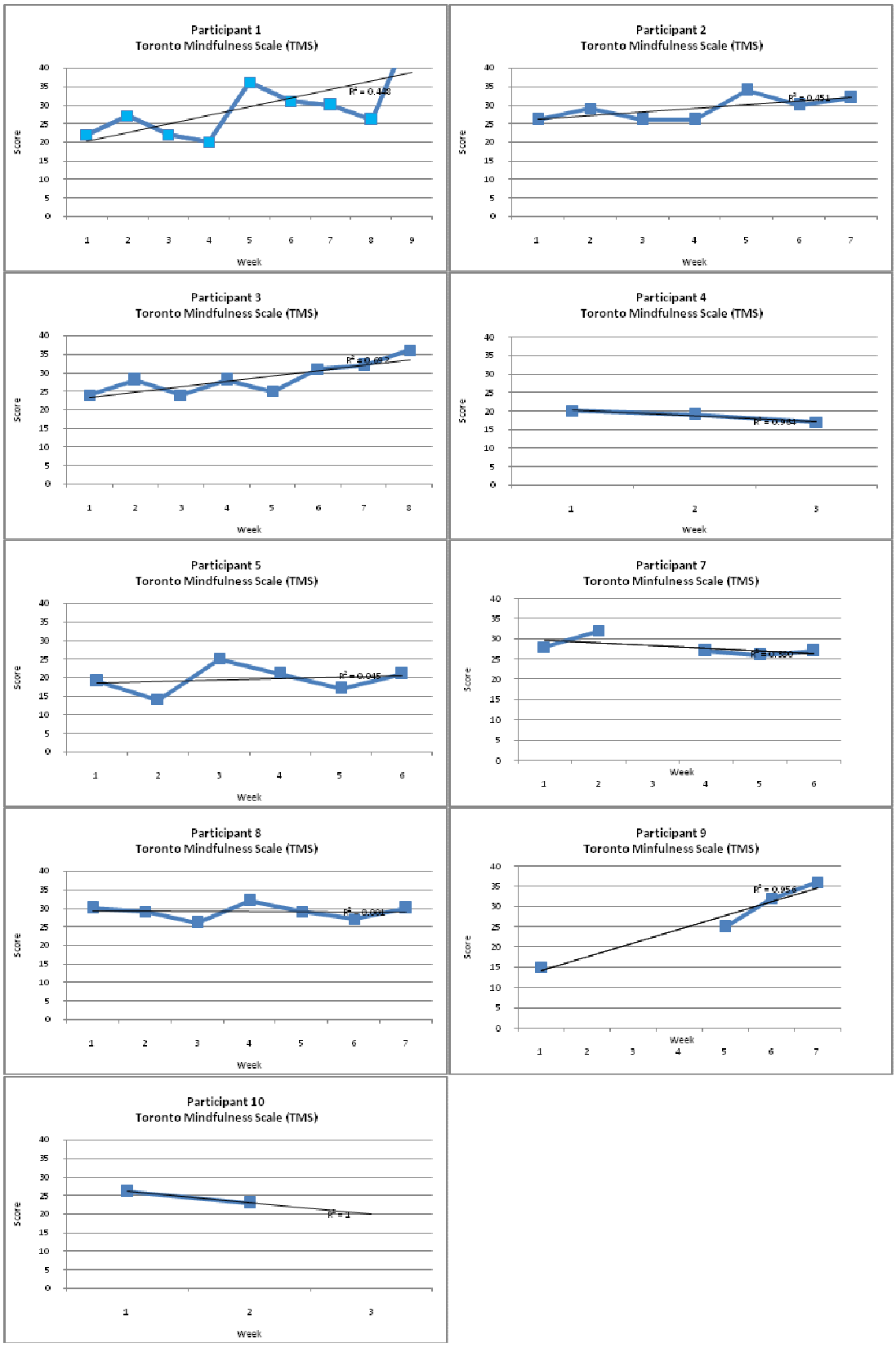

Figure 5. Trend graphs for mindfulness ability measured by the Toronto Mindfulness Scale.

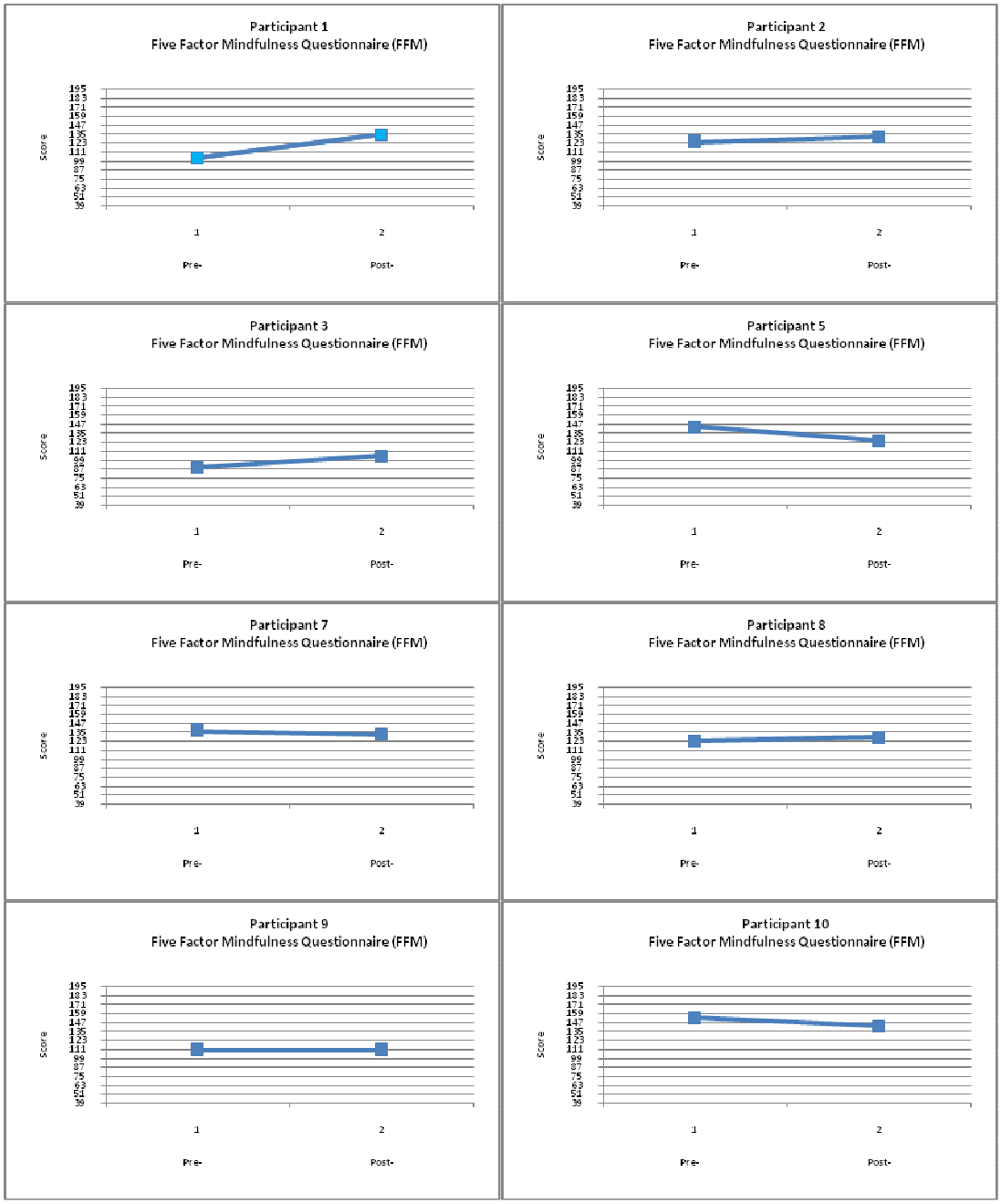

Figure 6. Trend graphs for mindfulness ability as measured by the Five Factor Mindfulness Questionnaire.

Table 12

Supplementary Information for Figures 1 - 6.

Figure #	Participant	Measure	Direction of Trend Line	R^2 Value	Clinical Trend*
1	1	SENS 2	downward	0.576	positive
1	2	SENS 2	flat	0.017	neutral
1	3	SENS 2	downward	0.484	positive
1	4	SENS 2	downward	0.750	positive
1	5	SENS 2	downward	0.555	positive
1	6	SENS 2	downward	1.000	positive
1	7	SENS 2	downward	0.417	positive
1	8	SENS 2	flat	0.007	neutral
1	9	SENS 2	flat	0.072	neutral
1	10	SENS 2	downward	0.132	positive
2	1	Q-LES-Q-18	flat	0.092	neutral
2	2	Q-LES-Q-18	flat	0.042	neutral
2	3	Q-LES-Q-18	upward	0.281	positive
2	4	Q-LES-Q-18	flat	0.000	neutral
2	5	Q-LES-Q-18	upward	0.612	positive
2	6	Q-LES-Q-18	upward	1.000	positive
2	7	Q-LES-Q-18	flat	0.080	neutral
2	8	Q-LES-Q-18	flat	0.032	neutral
2	9	Q-LES-Q-18	downward	0.176	negative
2	10	Q-LES-Q-18	flat	0.000	neutral
3	1	PSEARD	upward	0.100	negative
3	2	PSEARD	upward	0.181	negative
3	3	PSEARD	upward	0.483	negative
3	4	PSEARD	flat	0.024	neutral
3	5	PSEARD	flat	0.000	neutral
3	6	PSEARD	downward	1.000	positive
3	7	PSEARD	flat	0.000	neutral
3	8	PSEARD	downward	0.138	positive
3	9	PSEARD	flat	0.022	neutral
3	10	PSEARD	upward	0.301	negative
4	1	SENS 1	upward	0.361	positive
4	2	SENS 1	downward	0.193	negative
4	3	SENS 1	upward	0.569	positive
4	4	SENS 1	upward	0.750	positive
4	5	SENS 1	flat	0.011	neutral

4	6	SENS 1	downward	1.000	negative
4	7	SENS 1	downward	0.614	negative
4	8	SENS 1	flat	0.009	neutral
4	9	SENS 1	downward	0.336	negative
4	10	SENS 1	flat	0.000	neutral
5	1	TMS	upward	0.448	positive
5	2	TMS	upward	0.451	positive
5	3	TMS	upward	0.692	positive
5	4	TMS	downward	0.964	negative
5	5	TMS	flat	0.045	neutral
5	6	TMS	no trend	no trend	no trend
5	7	TMS	downward	0.380	negative
5	8	TMS	flat	0.001	neutral
5	9	TMS	upward	0.956	positive
5	10	TMS	downward	1.000	negative
6	1	FFM	upward	no trend	positive
6	2	FFM	upward	n/a**	positive
6	3	FFM	upward	n/a**	positive
6	4	FFM	no trend	n/a**	no trend
6	5	FFM	downward	n/a**	negative
6	6	FFM	no trend	n/a**	no trend
6	7	FFM	downward	n/a**	negative
6	8	FFM	upward	n/a**	positive
6	9	FFM	flat	n/a**	neutral
6	10	FFM	downward	n/a**	negative

Notes:

*"Clinical Trend" refers to the trend line type that was used for data analyses, with "positive" referring to clinical improvement, "negative" referring to clinical worsening, "neutral" referring to no change, and "no trend" indicating enough missing data to disallow generation of a line graph (see Method and Results sections).

** "n/a" is an abbreviation for "not applicable" and in this case indicates that because data were only collected at two data points, an R^2 value could not be generated (see Method section).

Dashed lines separate information about Figures 1-4 from Figures 5-6, for readability.

"SENS 2" is the Subjective Experience of Negative Symptoms modified Anhedonia subscale that measured reported distress related to anhedonia; "Q-LES-Q-18" is the Quality of Life Enjoyment and Satisfaction Questionnaire Revised-18 that measured

reported quality of life; "PSEARD" is the Positive Symptom Experience and Associated Distress questionnaire that measured reported distress related to positive symptoms; "SENS 1" is the Subjective Experience of Negative Symptoms modified Anhedonia subscale that measured behaviors and symptoms related to anhedonia; "TMS" is the Toronto Mindfulness Scale that measured reported mindfulness ability directly after mindfulness practice in each of the training sessions; and. "FFM "is the Five Factor Mindfulness questionnaire that measured reported general mindfulness ability at pre-test and post-test.

Exit Interview data were also analyzed (Table 19). For the question "How valuable did you find mindfulness training to be for you?" the mean score was 3.38 (approximately "quite a bit" on the 0-4 Likert scale). For the question, "How valuable do you think the mindfulness training might be for others?" the mean score was 3.63 (between "quite a bit" and "very much"). In response to "How often are you practicing mindfulness skills right now?" the mean score was 2.25 (approximating "moderately").

Introduction to Qualitative Data Analysis Results

Research questions for the qualitative data analyses were proposed in the arenas of reactions to training, experiences related to training, general experiences, and relationships among these factors that might be salient in determining treatment outcome and progress and offer insight and possible explanation into the individual and across-participant experience in the mindfulness training. Qualitative analyses were proposed in order to utilize this information to improve the mindfulness training and training manual development and modification, with the bulk of the interpretive value and weight given to the "reactions to training" data. Results from qualitative data analyses did lead to themes, relationships, and indications for training and training manual development. These results are principally derived from two areas: qualitative coded categories' frequency analysis and specific participant feedback comments. Themes from the trainer's perspective were

also assessed (Appendix L), and an overall conceptual analysis was proposed. However, because of the more subjective nature of these latter observations and analyses, these themes and the overall conceptual analysis are primarily referenced in the Discussion section and were considered as having the least interpretive value and weight of all the information in this study.

Qualitative Coded Categories' Frequency Analysis Results

Table 7 lists each participant individually along with the person's most frequently endorsed coding categories. Table 20 lists coded categories that were endorsed by the highest number of participants. Table 8 lists coded categories that were the most frequently endorsed across all participants; these most frequently endorsed categories are:

"Reaction to training" experiences:

"Applying mindfulness own way" (e.g., painting, own analogy/metaphor).

"Observe skill helpful" (e.g., notice experience without reacting now).

"Training helped with self-concept" (e.g., assured, confident, centered).

"Related to training" experiences:

"Current difficult experiences with others" (e.g., argument, discord).

"Helpful behavior/thinking of own" (e.g., focus on positive).

"Current difficult emotional experience" (e.g., anxiety, depression).

"General experiences":

"Schizophrenia experience" (e.g., hallucination, delusion).

"Day-to-day life problems" (e.g., employment, housing, transportation).

"Struggle because of schizophrenia" (e.g., distress related to symptoms).

Treatment indications derived from the coded categories and analyses of their frequencies are proposed in the Discussion section, with the bulk of the interpretive value and weight given to the categories most frequently endorsed by the most participants (Table 8) within the "reaction to training" and "related to training" research question arenas. These areas appear to be the most topically related to the treatment process and outcomes and also represent the coded categories most frequently endorsed by the most participants.

Participants' Perspectives, Specific Feedback Results

Specific examples of participants' responses were also useful to guide treatment and training manual improvement, both during the study and in terms of future developments. These examples were extracted from the same data that were referenced to create the coded categories. Please see Table 11 for a listing of possible treatment indications based on this feedback from participants.

First, participants shared feedback in response to questions about training/treatment improvement. The most commonly mentioned suggestion for improvement was to make mindfulness and the skills easier to remember and to foster their becoming habits. Suggestions were to use more hands-on activities because these were deemed to be more memorable, to brainstorm more reminder cues for the participant to use during the week, to tailor and name skills and visual analogies specifically for each participant, to do more practice on one's own time, for the trainer to check in with the participant during the week, and to build in follow-up after training ends.

Other suggestions, mentioned only by one participant each, were to condense and intensify the training (e.g., "boot camp" style), remove the social mindfulness skill from training due to it not being necessary, extend the time in sessions, use more breathing practices, use even more visual analogies, spend more time on specific skill steps rather than discussion, increase reinforcement that the participant is practicing the skill correctly, and to communicate understanding and validate the difficulty of applying mindfulness to positive symptoms, especially those that are acute and emotionally laden.

In addition to the specific suggestions for improvement, participants shared specific feedback regarding what was most helpful in the training. All of the main skills topics were mentioned (One at a Time, Observe, Describe, Enjoying, Social) at least once. For example, one participant was asked what was most helpful and noted, "The Observe skill, just knowing that feeling and to where I can just detach myself from it, you know?" For the Notice skill, a participant stated, "Noticing more about judging helped me." For the Enjoying skill, a participant noted that what was most helpful was "The appreciate skill, where I keep my head up and look at the trees." The Social mindfulness skill was the second to least mentioned and was even judged as unnecessary by one participant, who noted that he already had social mindfulness skills. However, another participant noted it as the most useful, stating, "It is helpful to identify the social aspects of mindfulness…with regards to the natural pause in conversations." The Review was also specifically mentioned by one participant as being helpful. One at a Time was the skill least frequently mentioned as specifically helpful.

On a wider and more general level, helpful aspects of the mindfulness training often mentioned were the overarching mindfulness concepts of compassion and

gentleness. Compassion was not treated as a specific skill in the training but was mentioned in the general introduction and then briefly referred to throughout training, most often as a response to the participant initiating a discussion about it. Yet, realizations of the need for and the attempts at compassion were experienced by participants and the mindfulness trainer as profound and important. Participants spoke of the helpful nature of "returning to my care," "opening up like a flower," and "self-forgiveness." One participant referred to enjoying remembering the visual analogy used in training and also mentioned as an example in the introduction of this paper, "butterfly attention" (gentle attention).

In addition to the broader skills topics, other more detailed parts of the training were mentioned as helpful (see Training Manual, Appendix J and Quick Reference Sheet, Table 3, for descriptions of these specific terms). Cited were mindful breathing, visual analogies for mindfulness skills, hands on activities (e.g., mindful walking), and mental activities (e.g., labeling thoughts). Participants noted that the mindful breathing was "relaxing" and allowed for "clarity." The "waves and beach" (moving out of the waves and on to the beach for practicing the Observe skill) metaphor was mentioned the most often as a helpful visual analogy. The "zoom in/zoom out" metaphor (noticing details and then noticing one as present and part of a larger whole) that was used to teach the Enjoy skill was also often mentioned as useful. Participants would often refer to these analogies to explain their own experiences, rather than referring to the label of the training manual skill topic. For example, one participant noted "I realized that the cookie is not in the jar" (a reference to labeling and associated expectation, within the Describe skill). Another participant was asked about focus in a session and he noted, "got to pull that kite in" (a

visual analogy for catching thoughts and returning to the present moment, an analogy within the One at a Time skill).

In addition, participants shared that other general aspects of training were helpful for them. These can be described as understanding the mind in general, insights into one's specific mind, validation and empathy from the trainer, and catharsis in the session. For example, in reference to understanding the mind in general, a participant noted "the simplified reduction of worry" as helpful. In terms of insights about one's individual mind, participants became aware of habitual blocks to mindfulness and maladaptive habits. One participant noted, "I am understanding where I get stuck and how to move beyond that." Another said, "I know what has got me into trouble in the past, and I've let that go." Related to validation and empathy from the trainer, one participant noted, "The empathy was good," and another noted that what was helpful was that the "[trainer] is very gentle and supportive." Another mentioned, "I am very comfortable in this office and enjoy this time with [trainer]. …I feel that she is teaching me to protect my mind and feelings and self from unpleasant guilt, anxiety, paranoia, and stress." Catharsis in general in the session was the factor least often mentioned, but from the trainer's perspective (see Appendix L) it was noted as quite helpful for participants.

Discussion

The application of mindfulness as a treatment intervention has shown evidence of various beneficial outcomes for a number of populations (Baer, 2003, 2010). However, researchers have yet to determine the effects of a mindfulness intervention tailored to the particular experiences of individuals with schizophrenia and related disorders. This

exploratory research study endeavored to develop and provide a tailored mindfulness program to individuals with schizophrenia, to determine whether and how the intervention might or might not be helpful or useful, and to identify possible factors contributing to outcomes, ultimately utilizing this information to inform training manual and training development.

Quantitative data analysis results from this study indicate that 60% of participants showed evidence of an overall clinically positive score trend summarized across measures, most frequently in the outcome area of anhedonia-related distress (70%). No association was found between improvement in mindfulness ability and improvement on the outcome variables measuring quality of life, anhedonia symptoms and distress, or distress related to positive symptoms. Exit interview data did indicate that, on average, participants reported that this mindfulness training intervention was valuable for them.

It had been expected that there would be evidence for a positive clinical trend for distress related to positive symptoms over the course of the mindfulness training, as this has been a finding in other research that has applied mindfulness training to symptoms of psychosis (Chadwick et al., 2005). In fact, some participants in the current study showed evidence of negative clinical trends or deterioration in this area. It is possible that there were problems with the outcome measure utilized (the PSEARD), or this training may not have appropriately addressed this area of functioning. The mindfulness trainer may also not have taught this material appropriately or sufficiently thoroughly. It is also possible that the mindfulness trainer did not provide an appropriate environment in which this content could be learned, for example in terms of establishing safety, modeling mindfulness (Krasner, 2004; Santorelli, 2001), or approachability. However, this last

explanation appears unlikely because participants indicated in the exit interview that in general trainer support was helpful.

It is also possible that the structure of the training did not allow enough time, exposure, and practice for the application of mindfulness to the experience of positive symptoms. Specific participant feedback in the qualitative data included that some participants suggested that training could be improved by adding more time and sessions or by changing the training format into condensed and time-intensive training sessions. Some participants also specifically reported that the training could be improved by making the skills more accessible to memory recall. It is unknown, however, whether such an extension in number of sessions and session time would have improved the ability to apply mindfulness to the experience of positive symptoms and reduce associated distress.

In addition, it is possible that participants did not find this application of mindfulness immediately useful or helpful, and may have abandoned attempts at further application. Positive symptoms may prove to represent a challenging area in which to apply mindfulness. Alternatively, participants may have habituated already to a level of distress associated with these symptoms and may not have felt sufficient motivation to apply mindfulness to them.

Another explanation, drawn from the qualitative data's coded category frequency analysis, is that participants may already be using helpful behavior and thinking methods of their own that are not mindfulness-based. It may be that the participants felt comfortable relying on these habitual methods, regardless of whether they work or not, rather than switching over to the novel and unfamiliar process of using mindfulness to

manage positive symptoms and associated distress. Exit interview data indicates that on average participants were only moderately using mindfulness skills at the end of training. However, it is unknown whether other skills were being used to address positive symptoms, and why mindfulness skills were not used more often.

Additionally, other factors outside of the training may have also contributed, and an open question concerns the role of outside-of-session events on outcome variables. More research is needed to determine the factors contributing to this unexpected outcome. It is possible that one of these factors could be the prominent role of difficult emotional experiences, as was apparent in the coded categories' frequency analysis of the qualitative data. One of these difficult emotional experiences may have been the presence of anxiety or depression, as was noted in a trainer's perspective theme (see Appendix L) which identified that during the training sessions participants seemed to prefer focusing on and discussing anxiety and depression more often than schizophrenia symptoms.

These same considerations also apply to the unexpected finding that most participants did not evidence continued improvements on the questionnaire items that measured symptoms of anhedonia, especially since one of the more highly endorsed qualitative data's coded categories was "participating in enjoyable healthy behaviors." (This is a "related to training" coded category that is included here because it appears to be particularly relevant.) One explanation for this is that anhedonia is especially treatment resistant, consistent with Gaudiano and Herbert's (2006) findings that anergia (a negative symptom) did not change as a result of intervention with ACT (an intervention with mindfulness foci). It is also possible that in the current study the outcome measure used for anhedonia was inappropriate (adapted SENS anhedonia

symptom items, indicating frequency of involvement in activities such as hobbies or making friends). In their review of anhedonia assessment measures, Horan, Kring, and Blanchard (2006) noted that assessment of participation in activities may not be an appropriate way of measuring lack of pleasure. However, the current findings for distress related to anhedonia are promising (see below).

The qualitative data's coded category frequency analysis results offer one possible explanation for the unexpected results for anhedonia behavior (as measured by a modified SENS "1"). The coded category of "current difficult experiences with others" was a highly-endorsed category for eight out of ten participants. Three out of five of the SENS 1 behavior questions are related to interpersonal experiences. The content of these questions includes making friends, having a close relationship with others, and level of need for contact with other people. It is possible that the training did not comprehensively or appropriately address the areas of anhedonia that are related to experiences with other people. The training was developed to address anhedonia by improving clarity and richness of experience and by improving interest in the environment; this does include other people, but this was not the primary focus of the anhedonia-related portion of the training.

A trainer's perspective theme (see Appendix L) may also partially explain the anhedonia results. First, the trainer observed that participants noted that they felt overwhelmed and rushed. It may be that participants did not want to add hobbies or interpersonal activities to their lives because this may have increased a perception of feeling overwhelmed. Another explanation, drawn from the qualitative data's coded category results, is that participants' self-concepts improved; this may have somewhat

paradoxically led to less reliance on others. Also, specific participant feedback indicated that compassion and associated gentleness was a favored topic in the mindfulness training. It is possible that participants began to become more compassionate, accepting, and less judgmental of their own selves. It may be that an enhancement in self-concept may result in less need to define one's self interpersonally and with certain social behaviors. These changes in self-concept may have resulted in less of a motivation or drive toward interacting with others and participating in hobbies and related behaviors.

In terms of quantitative outcomes, it was also unexpected that only 30% of participants improved in levels of measured quality of life. This might be explained by the apparent paucity of time available to learn and apply skills in this study, including skills directed toward quality of life. The training manual and process may need to be modified better to foster improved reported quality of life. In addition, quality of life may be too general of an outcome measure; it may be more useful to utilize specific components of quality of life and related concepts to capture any potential training effects (e.g., in hope, purpose, meaning). Also, coded qualitative data categories' frequency analysis indicated that participants frequently endorsed day-to-day problems such as employment and housing. These problems may have been sufficiently chronic and serious to make quality of life a refractory outcome variable.

The most significant finding from the quantitative data was that 70% of participants showed evidence of improvement in distress related to anhedonia over the course of mindfulness training. It is possible that for certain symptoms related to schizophrenia the symptom itself is refractory, but that distress related to the symptom can be mitigated. One example from other research appears to be positive symptoms of

schizophrenia (Chadwick et al., 2005), something not found in the current study; anhedonia might be another.

Participants reported in the qualitative data's coded category frequency analysis and in specific participant feedback that the "Observe" skill, "Describe" skill, and compassion aspects of training were helpful. The use of these mindfulness components may have allowed participants to experience less self-judgment regarding involvement in activities related to anhedonia and therefore less distress related to anhedonia. Alternatively or concomitantly, specific participant feedback, trainer's perspective and themes, and exit interview data all indicated that general sharing of experiences and trainer feedback were valuable to some participants. The apparently positive results for distress related to anhedonia could be related to the use of these specific mindfulness skills and these general factors related to training, or to other unknown or unidentified factors (such as, for example, some participants' qualitative reports of "specific helpful experiences with others," a "related to training" coded category that is mentioned here because of its particular apparent relevance).

Quantitative data results related to mindfulness ability appear to be at odds with the positive finding of distress related to anhedonia. There were no associations found between improvements in mindfulness ability and improvement on the outcome measures, including distress related to anhedonia. This could indicate that the mindfulness ability outcome measures are not capturing an aspect of mindfulness that was useful for the participants (for example, compassion, which was not a specific factor or component of either of the mindfulness ability measures). It could also indicate that another aspect of training was useful for improving distress related to anhedonia, such as

trainer feedback, which was on average reported as valuable in the exit interviews. Another explanation may be that the SENS 1 did not appropriately measure experiences related to anhedonia, and that anhedonia had actually improved, with distress related to anhedonia subsequently improving.

Qualitative Data Discussion

An overall conceptual analysis was generated drawing from the qualitative data and themes, with some reference to quantitative data. This conceptual analysis is intended for use as a loose reference guide for mindfulness trainers working with similar populations, for assisting in conceptualizing, organizing, and conducting training. It suggests possible factors and processes that may occur in mindfulness training with similar populations. It suggests directionality but is not intended for use as a rigidly defined stage or sequence model. This conceptual analysis is based in the mindfulness trainer's overall understanding and analysis of data and is therefore subjective and at the highest level of extrapolation thus far in this research. In addition, the process of qualitative data collection was abridged to meet the needs of this "hybrid" research. Therefore, although this analysis is informed and grounded in available data, the data are limited and the analysis is subjective and extrapolative.

Overall Conceptual Analysis

Phenomenological theory directs the researcher to look for the "essence" or meaning of a phenomenon (Polkinghorne, 1989), in this case the experience of this mindfulness training. Grounded theory directs the researcher to look for a "central phenomenon" (Strauss & Corbin, 1998). It was determined in this analysis that the essential essence and central phenomenon of this training for individuals with

schizophrenia involved experiencing a more centered sense of self, where the self was experienced in a way that felt safer, more anchored, and more healthily self-protective. The means to this more centered self-concept was via mindfulness, but the direction, consistency, speed, frequency of utilization, profoundness of the experience, and reaction to the experience were highly varied across the ten participants studied.

How did this process occur? How did mindfulness appear to provide a vehicle for this essential experience of the training developed for individuals with schizophrenia? Many of grounded theory's "directives, conditions, context, consequences, and strategies" (Strauss & Corbin, 1998) were identified in relation to the proposed essential meaning or central phenomenon of the experience. These connections tie in and account for many of the themes and analyses conducted in this research and previously discussed. Those relationships are discussed here and are diagrammed in Figure 7. In Figure 7, arrows between concepts suggest possible hypothesized associations based on the author's subjective analysis of available data, and they do not indicate causality. A final set of treatment indications related to this conceptual model is included in the Discussion section.

To equip one to move about this conceptualized model, "self-concept" and "centered" must first be operationally defined. Self-concept has been broadly defined as a person's perception of oneself, based on his or her own appraisals of what one is, and also beliefs about how others see one (Sebastian, Burnett, & Blakemore, 2008). It represents the answer(s) to the questions: "Who/what am I….and how do I feel about myself?" (Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996). Self-concept encompasses other constructs such as self-esteem and also includes structural

characteristics (how the self-concept is organized), such as "self concept clarity." This is a component of self-concept that has been defined as "the extent to which self-beliefs are clearly and consistently defined, internally consistent, and stable" (Campbell et al., 1996). "Compartmentalization" is another structural aspect of the self-concept, referring to the relative separation or connection between different positive and negative self-beliefs (Showers, 1992).

A "centered" self-concept is defined here as a perception of the self that is flexibly anchored, settled, and comfortable. A person who is experiencing a more centered self-concept has the experience of being present in the physical body, settled in, comfortably gazing out, and sometimes gazing inward to re-assess and adjust as one chooses and is able. This sense of feeling anchored and present in one's body can translate into a sense of mattering, of being present and visible, but as an observer rather than as viewed under a microscope. Based on this conceptualization, a person with a centered self-concept would theoretically be less immediately reactive to others' perceptions, less biased toward self or other in a positive or negative direction, and less likely to be unbalanced and upended because there is anchoring and flexibility to a centered self-concept.

Although there are avenues other than mindfulness for arriving at a more centered sense of self, the three main mindfulness components analyzed in this study are those relevant to this process. As conceptualized and categorized in this study and in this conceptual model, these components are "Awareness," neutral "Cognitive Processing," and "Compassion." Participants began by choosing one or more of these components, either by direction from a skills topic or by gravitating toward one or more of them. It is

postulated in this model, based on the trainer's observations, notes, and conceptual integration of the material, that participants inherently gravitated toward one component of mindfulness and tended to return to this component as their favorite or preferred method of experiencing mindfulness, although not exclusively so; Awareness (known as the "Observe" skill in training) was the most preferred method of employing and experiencing mindfulness.

It is important to this model that participants often reported applying mindfulness in their own ways. For example, participants created their own analogies to help recall and employ mindfulness. Also, they applied mindfulness to certain preferred activities, or by combining it with another coping technique. Therefore, when participants hypothetically progressed through this model and used mindfulness, often they were using their own preferred analogies, techniques, or activities. This is illustrated in Figure 7 with a highlighted comment balloon that reads "My way (individual way) of using mindfulness."

Although some participants appeared to progress into an additional mindful state once they enacted one aspect of this model, the model will be described here starting from each of the three component starting points. The proposed interaction among components is illustrated by diagonal arrows in the diagram. The "Awareness" component includes being in the present moment, observing (versus avoiding or suppressing), de-fusing or un-attaching, and directing attention flexibly. "Cognitive Processing" includes neutrality, de-identifying, and allowing as is (versus being involved with "should"). "Compassion" includes gentleness of attention, gentle approach, and loving-kindness.

Awareness, known as the "Observe" skill in training, was highly endorsed in the category coding frequency analysis and often mentioned in specific participant feedback, and therefore it is highlighted in Figure 7 because it appears to be a primary and preferred way of employing mindfulness. The typical reactions to the "Awareness" state were to feel one or more of the following: less overwhelmed (especially from positive symptoms and day to day problems), less rushed (especially in relation to day to day problems), more relaxed, or to feel enjoyment or pleasant feelings. From the states of feeling less overwhelmed or rushed, consciously chosen decisions could be made more easily. As a result, increased confidence and self-efficacy were generated. These feelings translated into a more centered sense of self, which could also feed back to enhance confidence and self-efficacy further. From the feeling of enjoyment or pleasant feelings, or the relaxed state, one could also arrive at a centered sense of self. However, for some individuals feeling good and relaxed could also lead to feeling uncomfortable, vulnerable, or in experiencing shame or guilt. At this point the individual could pull out of the mindful, pleasant, or relaxed state(s).

Continuing on from the centered self-concept, possible outcomes could include increased hope and perception of opportunity, increased enjoyment of beauty or activities, decreased distress related to anhedonia, and increased relationship quality and quantity. These could further lead to decreased anxiety or depression or decreased anhedonia, which could then lead to an increase in healthy behaviors. These feed back into self-efficacy and to a centered sense of self. However, as noted above, for some, experiencing increased enjoyment or hope could also lead to feeling shame or guilt for feeling good and to feeling uncomfortable or vulnerable.

Starting from the "Cognitive Processing" component, a participant could primarily move toward decreased resentment toward others about the past or decreased feelings of invalidation when others don't react well to schizophrenia-related symptoms. A participant might also move primarily toward a decreased sense of feeling either invisible or too obvious, an increase in comfort with oneself the way one is, decreased experience of stigmatization from self or others, or decreased ruminating over "shoulds" regarding the past and lost opportunities. One, all, or a combination of these experiences could lead to feeling good or relaxed, which could then again possibly lead either to shame, guilt, or to vulnerability. More positively, one or all of these experiences could also lead to a more centered sense of self, again leading to increased enjoyment, hope, and so on.

Starting from the "Compassion" component, the individual typically might move directly to a more centered sense of self. This was the primary "shortcut" that seemed to occur during the training, although some participants appeared to move directly from "Awareness" and "Cognitive Processing" to a more centered sense of self. From the "Compassion" component to a more centered sense of self, there are paths that were already mentioned; for example increased hope could lead to decreased anhedonia, or increased enjoyment to shame or guilt.

An important piece of this theorized model is that a metaphorical "wall" exists consisting of possible blocks to enacting one or all of the three mindfulness components. These appear to the left in Figure 7. For the participants in this research these blocks were decreased energy (often related to anxiety or depression), not remembering to use mindfulness (being in habitual mindlessness), experiencing very acute positive symptoms

(very little to no insight or intense fear and belief of possible physical harm, lessening the possibility of using mindfulness), fear of losing enjoyable hallucinations or delusions, and timing (not being open to mindfulness, not being ready for it, not feeling like it will help right now, unresolved trauma, etc.).

Another important piece of this model concerns the observation that once a participant moves through a certain combination of avenues, typically the short-term end result is not one in which the beneficial outcome feeds back to a greater likelihood of the future use of mindfulness. The component of centered sense of self was an exception, in that participants apparently could be propelled back to the "Compassion" component of mindfulness as a result of being in this state. However, such an occurrence was rare. Mindlessness appears to be such a strong habit that it easily takes the individual back over; at most times it seems that mindfulness must be "kick started;" consciously recalled and implemented again and again.

Individual Illustration

To illustrate this process further, one participant's experience is described here. "Amy" (fictional name) reported a difficult history with interpersonal relationships, which she largely attributed to schizophrenia. As a result of these experiences she felt resentment and skepticism toward others, invisible to others, as well as invalidated and unheard. These experiences partially contributed to some disconnection to people who were in her life. Also preventing her from relating to others was her deeply-held belief that she did not deserve happiness, based on guilt over past behaviors and perceived failures and disappointments, many due to schizophrenia-related experiences for which she took excessive responsibility. Most consciously distressing were her symptoms of

depression and anxiety, which she felt robbed her of energy, hope, and a clear mind. She reported many physical problems which also lowered her energy level and limited her participation in many activities. In addition, she noted that the computer and television tended to pull her into an anxious state and seemed to keep her from doing things she wished to get done.

From the beginning, the aspects of the training that Amy gravitated toward and wished to discuss were "Compassion" and associated gentleness, as well as "Cognitive Processing" (specifically, letting things be as they are versus "should" be). Eventually she was able to develop compassion for herself and to feel safer and more comfortable with herself. In the terms used above, she appeared to achieve a more centered self-concept. Apparently as a result, she reported feelings of enjoyment and relaxation. Her initial response to these was to feel shame and guilt about feeling good and to feel vulnerable and uncomfortable due to the novel experiences. This was discussed in session and Amy was directed back to compassion and also toward neutral cognitive processing. She was able to move through these feelings of discomfort as they came up.

Eventually, Amy reported feeling more hopeful, and her symptoms of depression and anxiety lessened. She funneled her increased energy into taking walks more often, which appeared to enhance further her sense of efficacy and then her self-concept. Also apparently as a result of a more centered self-concept Amy reached out to people in her life and was able to assert boundaries to protect herself; it seemed she now felt she was worth protecting. Her relationships reportedly improved.

Amy also utilized the "Cognitive Processing" component in order to assist with decreasing self-judgment, resentment toward others, assumptions about how others might

react to her, her sense of feeling invisible, and her experience of past lost opportunities and unfair experiences.

Although she utilized these abilities less often, Amy had a reportedly natural capacity to be able to experience beauty and enjoyment profoundly when she allowed or reminded herself to do so. Therefore, she accessed the "Awareness" component quite easily, to be more in the present moment and to notice the beauty in the moment. Through learning to be in the current moment more often, Amy also reported that she was able to experience more enjoyment through small things that are always available regardless of one's physical health, such as events in nature. It appeared that this was a cyclical, self-enhancing process.

Individual Illustration Qualifiers. Although the case example illustrates a participant benefiting from mindfulness, it must be emphasized that this participant appeared to experience a fairly profound transformation that was rare among the ten people studied here. Also, her process of change was not linear and consisted of progressing forward and backward and moving around through the steps identified in Figure 7. In addition, the beneficial outcomes represented momentary instances rather than steady changes, and Amy continued to struggle to enact the practice of mindfulness. She reported having difficulty remembering that mindfulness was an option, and dealing with long-held blocks related to shame, guilt, and vulnerability. These certainly did not disappear completely with the intervention.

By her report Amy continued to struggle to remember and apply mindfulness. When with the trainer in the training session she stated that she was able to do this much more easily than on her own. These qualifiers lead to the somewhat disappointing

conclusion of this individual illustration and of the overall conceptual integration: that mindfulness typically did not re-trigger or sustain itself as a consequence of its temporary beneficial outcomes. It requires a great deal of practice, remembering, and mindfulness about mindfulness itself.

Overall Conceptual Analysis Discussion

Considering existing research regarding the self and self-concept in relation to the experience of schizophrenia and serious mental illness in general, it is not surprising that a more centered self-concept emerges as a possible essential meaningful experience for individuals in this mindfulness training. Robey, Cohen, and Gara (1989) note that self disturbances have been associated with schizophrenia since at least the early twentieth century. Estroff (1989) writes of how, for example, when we are ill in any way we tend to say that we are "not feeling like (my)self." She describes how the symptoms of schizophrenia, other people's reactions to a person with schizophrenia, and individual response to the experience of schizophrenia can alter the sense of self. Lysaker, Lysaker, and Lysaker (2001) described self-narratives of those with schizophrenia as "cacophonous" or "rigid." Geanallos (2005) investigated the "resilient self" in schizophrenia, reporting that the "vulnerable" and "submerged" self represent thematic experiences for those with schizophrenia. Tai and Turkington (2009) review past research and include self-to-self relating and self-esteem as important factors in the experience of schizophrenia.

In recent mindfulness research Abba et al. (2008) reported that as their participants came to accept psychosis as only part of the self, it "no longer defined the self." They also reported that in their mindfulness intervention for individuals with

schizophrenia, self-awareness and self-concept were enhanced as the individual learned to know the self as something other than or in addition to the person who is in relation to and struggling with schizophrenia symptoms.

There are multiple ways that mindfulness may assist in someone experiencing a centered self-concept, many of which are described above in the overall conceptualization for this research, and illustrated in Figure 7. For example, mindful cognitive processing enhances the ability to choose to shift attention flexibly from stimulus to stimulus, avoiding fusing to the stimuli and either losing the sense of self or defining the self solely by the stimuli with which one is fused (e.g., the experience of psychosis, role as "patient"). Also, as consciously chosen and more neutrally informed decisions are made based on mindful surveillance of stimuli, it is possible that an individual's self-efficacy could be boosted and reinforced, contributing to a more centered sense of self. In addition, the relaxation that can sometimes occur as a side effect of mindfulness could provide a feeling of soothing, safety, and calm energy that may be anchoring, settling, and comforting. Simply shifting to a perspective of viewer or observer may allow for an entirely different sense of self, one that is agentic by virtue of observing rather than being taken over by stimuli, not defined by constantly shifting, reactive, and negative attributes of the non-observing self. Also, applying mindful compassion could lead to less identification with negative labels, less reactivity to perceived judgment, and less instability from over-relying on others' views to determine the self-concept.

At this point in the discussion it is important to ask why self-concept would potentially be impaired or vulnerable for an individual with schizophrenia. Based on

participant feedback and qualitative themes in this research it is postulated that certain past and current experiences (and sometimes the abnormally high frequency of these occurrences) could lead to repeated questioning and destabilizations of, and insults and blows to the self-concept. For example, an individual with schizophrenia often experiences stigma (Geanallos, 2005; Yanos & Moos, 2007). These individuals may also feel invalidated by, controlled by, or fearful of the mental health system; one participant in this study noted that she felt like a "pet" of the mental health care system. In addition, those with schizophrenia who experience auditory hallucinations often experience themselves as the target of their voices and their sometimes vicious attacks on the self; one participant noted the "slanderous" voices he endures. Indeed, Abba et al. (2008) described the "tyrannical" rule of hallucinations and delusions and the subsequent conception of the self based on relationship with hallucinatory voices.

Such experiences could lead to excessive questioning of the self, suppressing characteristics of the self, feeling choice-less and therefore abandoning protecting the self, looking to others too often to define the self, fracturing of the self, experiencing a fluctuating sense of self, or exaggerating or minimizing certain parts of the self. One of the participants in this study stated that she felt like a "skeleton," and another described feeling "broken." Yet another stated that prior to the mindfulness training he had felt the only self he had was a "dark self." Another stated that she felt she must "re-learn thoughts after each schizophrenia episode; it's vulnerable." Another said, "I'm afraid of losing myself…I get attached [to a person], turn into a little kid."

It is postulated here that these experiences either immediately or eventually damage the self-concept. From such a vulnerable and unstable place of awareness it

would be challenging for anyone to deal with even day to day matters, not to mention having to cope with hallucinations, delusions, anhedonia, or difficult social interactions. It is proposed that mindfulness centers the self via two primary mechanisms or paths of change, both illustrated in the overall conceptualization chart (Figure 7).

First, mindfulness practice might rebuild the self-concept through intermediate processes, such as feeling less overwhelmed and more able to make conscious decisions and experience subsequent self-efficacy. Second, mindfulness at its most existential and fundamental level might allow an individual to shift into a place of observing awareness, not defined by any labels. It is a sense of fullness, but empty of qualifiers. It is possible that this space is experienced by the participant as a stable and centered sense of self because it is immune to labels, judgments, and the requirements of complex roles. The mindful self is a home that is defined by nothing and threatened by nothing, whereas the mindless self is defined by vulnerable particulars. It may be that the individual with schizophrenia recognizes the mindful state as an authentic self, one that is inherently centered.

Relevant participant quotations that support this conceptualization include, “The self can be so complicated I can forget about loving little things;” “I am getting more grounded;” “I’ll remember how it feels to pull myself in and feel myself;” “I’m being more mindful of me;” “I feel that she is teaching me to protect my mind and feelings and self from unpleasant guilt, anxiety, paranoia, and stress;” “What was helpful was finding what parts of my experience are true to me, and returning to my care;” and, “I feel more like the ‘captain of my ship.’”

Treatment and Training Development Indications

Treatment indications are based on five different sources: quantitative data analysis (Table 9), qualitative categories' frequency analyses (Table 10), specific participant feedback (Table 11), trainer's perspectives/themes (Appendices L and M), and the overall conceptual analysis (Figure 7). Following is a more comprehensive description of treatment indications drawn from quantitative data, qualitative categories' frequency analyses, and combined trainer's perspectives and conceptual analysis (treatment indications based on participants' specific feedback are straightforward and listed on Table 11). Treatment indications drawn from quantitative data and qualitative categories' frequency analyses' "reaction to training" results should be regarded with primary and higher relevance because they are drawn from less subjective data. Treatment indications drawn from the trainer's perspectives and the overall conceptual analysis are more subjective and should be considered as having minimal interpretive weight and value.

Treatment Indications, Quantitative Data Results

Since the majority of mindfulness interventions for those experiencing psychosis have shown evidence of decreasing distress related to positive symptoms, it seems likely that this outcome focus should be retained in future training intervention (e.g., Chadwick et al., 2005; Gaudiano & Herbert, 2006), despite the lack of support for change in this area in the current study (see Table 13, and Figure 3 in the Results section). The training manual and approach could likely be modified to address distress related to positive symptoms more efficiently. As an example, timing the use of the skills could be tailored; for those experiencing a highly acute positive symptom and not experiencing a "window"

of insight, mindfulness may not be a useful tool in the moment. However, it may be a useful tool later, when the participant has higher levels of insight. It is also possible that due to the time-limited nature of this intervention, not enough time was allowed to incorporate mindfulness training for use in coping with positive symptoms. This indicates allowing more time specifically for this experience or more time in general for all relevant goal and outcome areas.

With regard to the anhedonia results, patients rated themselves on anhedonia in five areas and also on distress related to anhedonia in these five areas. Overall, there was little change in the negative symptom behavior (see Table 13, and Figure 4 in the Results section). Among participants there was one more negative than positive trend in anhedonia behavior over the sessions. Previous research has indicated that frequency of participation in supposedly pleasant behaviors (e.g., social, hobbies) may not be a good reflection of the ability to experience pleasure (Horan et al., 2006). The anhedonia behavior measure used in this research measured frequency of behaviors associated with anhedonia, and thus the results may not reflect an actual ability to experience pleasure. Training may have actually been beneficial for anhedonia but not the associated behaviors that were assessed.

More important, distress related to anhedonia seemed to decrease for seven out of the ten participants (see Table 13, and Figure 1 in the Results section). It is possible that the non-judgment aspect of training allowed the participants to stop comparing their own activity frequencies to others and judging themselves negatively, therefore experiencing less distress related to participation. The training indication here is to incorporate further formal within-training discussion around this topic.

There are most likely ways that the training intervention could be modified to address anhedonia better. Johnson et al. (2009), for example, found that a "loving-kindness" meditation decreased levels of anhedonia in their sample. As mentioned earlier in this paper, "loving-kindness" is one way of operationalizing compassion, a feature of mindfulness that appears to be important. The indication for training here is to apply the compassion feature of mindfulness training more specifically to the experience of anhedonia. Anhedonia is a core feature of negative symptom schizophrenia and has been labeled as treatment resistant (Horan et al., 2006). Additional time and practice may be necessary to obtain beneficial outcomes when applying mindfulness to this experience. The improvement in this area noted in seven of the ten participants is worthy of further investigation.

A clinically positive quality of life trend only occurred in three out of the ten participants (30%) (see Table 13, and Figure 2 in the Results section). The training may need to be better developed and modified to address this outcome area more effectively. It might be improved by devoting more time to developing mindfulness skills, spending more time on the Enjoy skill, and adding hands-on activities and reminder cues for participants to use in their lives outside of the training sessions. Also, outcome measures that more specifically measure specific experiences of quality of life might be useful.

Quantitative data results indicated that there is not any evident association between increases in mindfulness ability (as measured by the FFM and TMS) and clinical improvement on the dependent variables. This raises questions about the conceptual bases of this study, which link mindfulness skills and clinical variables. Different outcome measures may better reflect the training content and process.

Also, exit interview data indicate that in general participants found this mindfulness training intervention to be valuable for them. They also reported that, in general, they believed the training would be valuable for others. This indicates that overall the intervention was perceived as a useful or helpful treatment and suggests research to determine more clearly what factors and processes contributed to the participants' perceptions that the training was valuable. The training might preliminarily be considered to have useful components, despite this study's lack of expected findings for most specific outcome areas and measures.

Treatment Indications Drawn from Qualitative Data Category Frequencies

Coded categories were analyzed in three separate ways: individually (which categories participants endorsed at least once), those most frequently endorsed by each participant, and summed across participants. Indications for training are primarily focused here on the categories that were most frequently endorsed by and then summed across participants. These categories represent not only the most frequently endorsed ones but also those that were endorsed by many participants. They are likely to be the most salient across participants. The top three categories in the "reaction to training" and "related to training" research questions realms are discussed here in terms of possible training indications (also see Table 8). "General experience" categories were not included at this point due to their apparently more distant relevance to treatment indications. See Table 8 for a more comprehensive listing of most highly endorsed categories in all research questions realms according to their endorsements by the participants.

The first "reaction to training" category that was highly endorsed across participants was "applying mindfulness own way." Participants were referring here to

creating their own analogies, practices, or perspectives on mindfulness. It is possible that training could include working with the participant to develop a tailored personal "mini-manual" for each in which individual analogies, practices, and perspectives are catalogued. Such a tailored "mini-manual" might serve as a good reminder cue for using mindfulness and could be abbreviated into a set of cue cards. The "mini-manual" might also be more memorable for participants, as it would be created by and for an individual participant.

The second most frequent "reaction to training" category endorsed across participants was "observe skill helpful." This skill includes utilizing flexible awareness and detachment without separating from the experience. Participants noted that this skill helped them, for example in slowing down and providing more time for clarity and developing an associated reaction to an event. Retaining this skill in the manual is indicated, and it may be useful to modify the training manual to include even more ways of applying, discussing, and understanding this skill.

Finally, the third "reaction to training" category was "training helped with self-concept." This category includes feeling more confident as the result of training, feeling more centered, knowing the self more, and feeling safer with one's self. The indication here may be to include work on self-concept and mindfulness as a main skills topic. Additional discussion and understanding of mindfulness as associated with the self may be indicated. This could also be incorporated with the Observe skill, on the basis of which a different sense of self may be fostered as a viewer and agent, rather than being at the mercy of stimuli.

The first "related to training" research category discussed here is "current difficult experiences with others." This highly-endorsed theme suggests that it will be useful to retain the Social mindfulness skill in the training manual. This skill, which is related to experiences with others, may need to be modified however, due to an overall low endorsement of this skill as being specifically useful by the participants. This theme also suggests that it may be useful to address such experiences as opportunities to use mindfulness, while still allowing for validation. This stance could be operationalized as a Compassion sub-skill in the training.

The second most highly endorsed "related to training" category across participants was "helpful behavior/thinking of own." This category includes directing focus to positive things, making a gratefulness list, and finding helpful ways of relating to others. It may be useful to reinforce the skills already being used by participants and also to include a discussion of a skill "tool box," to which mindfulness may be added. It is possible that by connecting it with already-used skills, mindfulness may be remembered and developed more often as a skill option. It is also possible that this mindfulness training enhanced participants' perceptions of resources they already had, and that this "related to training" coded category area also represents a reaction to training. One treatment indication here is to include in the training manual a discussion topic related to using mindfulness to notice currently used resources and coping skills. This enhanced awareness may be helpful for participants in various ways, such as enhancing self-esteem and encouraging additional use of these resources and skills.

The third "related to training" coded category theme was "current difficult emotional experience." Examples include anxiety, depression, frustration, and

resentment. Some participants also noted that mindfulness was more easily applied to thinking than to feeling. This suggests further supplementing the training to address mindfulness as it is related to emotion. This could include additional discussion, creation of a specific skill, additional activities related to emotion, and in-session practice of applying mindfulness to difficult feelings. The compassion aspect of mindfulness may also be utilized to assist the participant with current difficult emotional experiences. The "Observe" skill is another choice to address this theme or category.

Also, the fourth most frequently endorsed "related to training" coded category was "recognize reaction/behavior as not helpful." It is possible that this ability could be utilized in mindfulness training to assist with current difficult emotional experiences. The ability to observe or recognize one's reaction as not helpful could be a consequence of using mindfulness and might also be enhanced by using other aspects of mindfulness (e.g., the "Observe" skill) and then applied as one way of coping with difficult emotional experiences.

Treatment Indications Drawn from the Overall Conceptual Analysis and Trainer's Perspective Themes

This material is drawn from proposed overall relationships between data, including the trainer's reflections on the data and the process of the sessions. Hence it is more subjective, potentially biased, and extrapolative than other data and results. Therefore, these treatment indications hold the least weight and value as compared to treatment indications drawn from other information, above.

First, based on the overall conceptual analysis it could be useful to reorganize the training material into the three components of mindfulness and designate these as skills

topics. “Awareness” and “Cognitive Processing” were designated as separate topics in this research’s training manual, but “Compassion” was only formally included in the introduction and review, not as a separate skill. However, it was the trainer’s experience that participants repeatedly referred to this aspect of mindfulness on their own, and some seemed especially drawn to this component (see Appendices L and M). Davis et al. (2007) also reported that self-compassion was one of the most well-liked and useful components in their intervention to treat the anxiety experienced by individuals with schizophrenia.

Based on participant feedback about enjoying visual analogies, it is recommended that these three skills areas be named for analogies, rather than termed “Awareness,” “Cognitive Processing,” and “Compassion.” For example, the “Awareness” skill could be renamed as “Getting on the Beach” (in other words, “and out of the water,” referring to the de-fusing from stimuli skill). The “Cognitive Processing” skill could be renamed, “Curious Scientist,” and the “Compassion” skill could be renamed, “Butterfly Approach.”

The second indication for training development is to include the flow chart (Figure 7), with a narrative explanation, in the training manual so that the trainer can refer to and follow this as a general overall guide for training. However, remaining flexible to participants’ other interpretations and experiences will also be important, especially considering that each participant reported a somewhat different experience in training.

Third, it will be important for trainers to be prepared to address the possibility of beneficial outcomes occurring that can then lead to blocks (for example, feeling hopeful

leading one to feel one doesn't deserve to be hopeful, then stopping the beneficial process). Based on participant feedback about what was most helpful, it seems useful to recommend that at this point, before shame, guilt, or vulnerability develop, three specific techniques might be tried. One is modeling of authentic validation, respect, and compassion by the trainer. Another is gently asking how any of the three mindfulness components might be utilized to address the feelings. The third is to implement a specific activity at that time, such as the breathing exercise that many participants reported finding helpful.

It is also recommended to incorporate a more highly developed section into the training manual that would help the participant to remember to use mindfulness and make it more habitual. The overall conceptualization indicates that typically the experience of mindfulness does not immediately activate another experience of mindfulness. It seemed as though for these participants, on most occasions, mindfulness had to be consciously recalled and implemented. Also, many participants noted that forgetting was one of their most significant reasons for not using mindfulness. Therefore, it would be very likely to be useful to spend the entire second session (after the general introduction) with the participant in an effort to tailor specific activities, practices, and cues. Revisiting and modifying or adding to this list later, and doing so often, will be important. Something also likely to be helpful (and noted by the participants as useful) would be the addition of more hands-on activities and more and different reminder cue helpers (e.g., refrigerator magnet with a mindfulness quotation, stickers). Part of the training might include asking the participant if it would be useful to set an alarm for certain times of the day and then to practice mindfulness for perhaps five minutes at those times. Another option may be to

telephone the participant at least once in the interval between training sessions and briefly check in, and then to decide with the participant how to choose to use mindfulness that day.

Finally, it would be likely to be useful to modify the training manual to keep the trainer aware of possible blocks to skill learning and implementation, along with useful tools to offer the participants to move past these blocks. For example, for the block involving decreased energy (often from anxiety and depression), a brief walk outside during the session might model behavioral activation and a possible resultant energy lift. (The trainer would need to remain mindful of maintaining a strong treatment container.) Alternatively, participants might be asked to identify their energy highs and lows and to plan to use mindfulness accordingly. A participant might also be asked to try minimizing television viewing or computer use for one day and determine if this helps energy in any way.

Also for example, the "invisible-obvious" dilemma could act as a block to practicing mindfulness. This dilemma was understood by the trainer as occurring when participants felt that due to having schizophrenia they were dichotomously either invisible to others or the focus of all others' attention, with little choice as to how they were perceived. An individual who endorses the "invisible-obvious" dilemma could experience the dilemma as a block to being open and curious with others (e.g., Social mindfulness), alone or in combination with other themes, such as resentments of past treatment by others, guilt and shame, loss and missed opportunity, and anxiety and depression. The experience of "invisibility-obviousness" and related themes (see Appendices L and M) may be useful areas to discuss or acknowledge in order that the

participants could observe and understand these experiences rather than unconsciously reacting to them.

The theme of participants feeling overwhelmed and rushed was relevant to training development as early on as the participant recruitment stage. The trainer observed that eight out of ten participants who did join the training noted that their sense of feeling overwhelmed and rushed had been a consideration arguing against adding one more thing, the mindfulness training, to what they subjectively assessed to be their busy lives. Also, both of the participants who ended training early stated that their reason for doing so was that they felt overwhelmed by life's activities. This statement may have served to avoid sharing something negative with the trainer, but this information is useful nonetheless.

Indications for the training would include modifying recruitment materials to indicate that the training is a way to deal with feeling overwhelmed or rushed. It would also be possible to change the length, time, or structure of the treatment to make it more accessible to those who are feeling overwhelmed or rushed (e.g., to use a "boot camp" condensed version of the treatment, as suggested by one participant, or an alternative extended version). Another treatment indication involves modifying the treatment to address the experience of feeling rushed and overwhelmed directly, either as a main skill topic or as a sub-skill or discussion topic within a skill.

With the theme of very acute symptoms where little to no insight into symptoms exists, or when the person believes that physical harm will occur, it might be useful to recommend that participants teach other people how to be mindful with them in this difficult moment. Also, they might choose to apply mindfulness after the fact to deal with

residual effects of a hallucination or delusion. The trainer might also work with the participant to identify a way to employ a physical cue that could distract from a distressing positive symptom and remind them to use mindfulness and possibly open up a small "window" of insight (e.g., a keychain, string around the wrist, breathing, etc.).

For the theme of positive symptoms that are deemed enjoyable it will be helpful for the trainer to talk with the participant about mindfulness, allowing conscious choices and changing the relationship to the perception rather than having the perception lose meaning altogether. This clarification is important to mitigate any possibility of misunderstandings that, for example, if one is mindful then one cannot be happy, or have any relationship at all with one's positive symptoms (misunderstandings that can occur with the Cognitive Processing component).

In this training, two participants who attempted to use mindfulness and initially felt they had failed, temporarily became frustrated, angry, and distressed. This was addressed by directing the individuals toward the Compassion component, exhibiting genuine validation, empathy, respect, and curiosity about this process, and re-iterating for the participant how difficult it is for anyone to try something new, often especially for those dealing with schizophrenia. It is recommended that this procedure be included in the training manual as part of the Introduction section and then that it be raised by checking in throughout the training. Also helpful would be frequent positive reinforcement and identification of gains and accomplishments that the participant may be missing. When the participant is experiencing a lack of mindfulness about mindfulness or re-living related frustration in session, it would be helpful to intervene with brief mindfulness practice in session in order for the participant possibly to re-gain a sense of

self-efficacy. Also, it should be noted here that despite these two temporary reactions, no participants in this training objected to the general structure or content of the training.

Responses from the eight participants who completed an Exit Interview indicate the importance of trainer support and the provision of a safe place for speaking freely. There was a mean of 3.63 (0-4 Likert scale ranging from "not at all" to "very much") for the question, "How valuable did you find the trainer's feedback and support to be?" and a mean of 3.5 for the question, "How valuable did you find sharing your experience with the trainer to be?" The exit interviews and related participant comments indicate that the training container and the trainer herself were likely to be factors in explaining openness to learning mindfulness, the practice of mindfulness, and clinically positive trends.

Thus, a validating, respectful, safe listener and training environment are likely to be important factors to examine in any replication or application of this treatment. These would theoretically be even more important for those with schizophrenia, based on the participants' high endorsement of difficult interpersonal experiences that were noted by the trainer during this treatment (e.g., the "invisible-obvious" dichotomy described above, others reacting negatively to schizophrenia and other symptoms, no current validating listener in life).

"Timing" was indicated by some participants as an important reason that they felt mindfulness was effective for them. In other words, the training occurred at a time in their lives when they were either able to participate in terms of time, energy, and resources, or based on openness to a new experience, especially one as intangible as that of mindfulness. In order to keep timing from becoming a block to participants it may be helpful to remain flexible with the timing of introduction of skills, titration of new skills

(how many at a time), and to attend to tact (how to introduce skills for each person, respecting where they are and who they are now).

In terms of general structural considerations it is recommended that the amount of time in each session at least be doubled. Although participants were to spend one hour each week in training, at least one quarter of this time was spent on questionnaires, and it was the trainer's impression that more than 15 additional minutes' time per session would be necessary to complete training fully and thoroughly. It is recommended that at least 1.5 hours per week be spent in training, in addition to questionnaire completion. Also, based on some participant feedback, phone check-ins during the week and follow ups after sessions end are recommended. Check-ins and follow ups are also likely to enhance the remembering of mindfulness as an option and development of the practice as a habit.

Finally and importantly, the overall conceptualization indicates that it would be useful and helpful to modify treatment such that the overall approach to mindfulness training includes at the very least a discussion of mindfulness in relation to self-concept, even centering the entire training around self-concept, relating mindfulness abilities and skills to self-concept throughout the entire process.

Research Design and Measurement Indications and Limitations

This exploratory and pilot research was developed and modified to allow flexibility in the measurement, analysis, and description of participants' experiences in training. This discussion has incorporated impressions of the trainer as well. Thus, this research used a hybrid mixed methods design, a design that is unique. Despite its not fully tapping into some of the benefits of either qualitative or quantitative research (such as qualitative research's detailed and thorough case history approach or quantitative's

statistical tests), it allowed the benefit of being able to offer more perspectives on the participant experience and treatment impact. As a result it is likely that this hybrid design was able to provide useful understandings of the impacts of the treatment and its possible contributions to outcomes.

Qualitative data were included in this hybrid design because they can be useful in capturing experiences and reactions that may not always be captured by quantitative measures. For example, in quantitative research the researcher chooses one or more measures for the designated outcome variables. Such measures are very useful if the researcher has past research or literature on which to rely in order to predict specific outcomes and to indicate that the outcome variables have been validly and reliably measured. However, with research such as this where the past literature is sparse or unavailable, or if the outcome constructs themselves are being questioned, explored, created, or matched with novel populations or interventions, other qualitative methods may be more likely to capture or illustrate outcomes. For example, for this research very few measures with published reliability and validity information were available for measuring distress related to positive symptoms. Although a quantitative measure was utilized, a qualitative aspect was included in the study, in part in an attempt to capture anything related to positive symptom distress that was not captured by the quantitative techniques.

Quantitative data and research designs are especially useful when the goal is to control for and understand other variables that may contribute to any relationships found between the independent and dependent variables, thus allowing more confidence in reporting findings indicating that the independent variable(s) was responsible for any

change(s) in the dependent variable(s). However, there are instances in research where the goal is not only to find out whether a treatment is beneficial. Other goals may include, for example, finding out what it was about the treatment that made it more or less beneficial, to gather extensive outcome data to determine what was affected or changed, and to determine what factors contributed to any changes or lack of change.

Statistical analyses used in quantitative research design typically require larger numbers of participants for the use of certain inferential tests and to have adequate statistical power. Practical considerations such as recruitment or population availability may make it impossible to acquire these larger numbers of participants. In this research both of the above conditions applied; the goal of gathering more expansive data, and limiting practical considerations. However, a primary research goal was to determine if the training intervention was beneficial, and thus the quantitative data, research design, and analyses were considered valuable in providing specific direction, structured predictive conceptualization, and guiding hypotheses for later triangulation with qualitative data.

Other researchers might well consider a similar design when the research goals are similar to those of this study. This author found the design to be useful in multiple ways. First, its flexibility allowed exploration and modification, as research design and practical considerations, trainer assessment, and participant feedback required. Second, the quantitative and qualitative data that were gathered were able to inform one another. Third, it was possible to achieve a more comprehensive understanding of participant process through training, outcomes of training, possible contributors to outcomes, and contextual variables.

This being said, there are still serious limitations to this hybrid design. The researcher loses very important beneficial aspects of both the quantitative and qualitative research traditions. For example, as mentioned previously, by not adhering fully to quantitative research design principles and procedures, one loses the ability to generalize one's research findings (external validity) or determine causality (internal validity), as was the case in this study. These are serious limitations. Eventually, if a research finding is to be applied, it is critical to know if the outcome will typically occur outside of the specific research context, and that the treatment truly is responsible for the outcomes reported in the research.

Losses are also incurred by not adhering strictly to qualitative research design and analyses. Qualitative research design is typically driven by specific research questions and purposes and has its own high standards for scientific rigor (e.g., verifiability and trustworthiness; Creswell, 2009). However, the hallmark of qualitative research is its thoroughness, offering a rich, detailed, and complex illustration of individual or group experiences. Therefore, by not fully adhering to qualitative design principles and procedures, as was the case in this study (regardless of the specific tradition, e.g., grounded theory, case study, ethnographic), one loses not only the full scientific rigor of qualitative analysis but also the ability to say more confidently that the findings represent all there was to know, and that what there was to know was appropriately understood and reported. This is related to the question about "saturation" mentioned earlier. In addition, the participants lose the potential experience of being fully heard and seen, an important way in which the researcher can be responsible to the community and individual and

partially return the participation investment given from the human being who is also a research participant.

The researcher must be willing to sacrifice these very important aspects of full adherence to either research tradition for the sake of the benefits of the hybrid mixed methods design. This is a decision that cannot be taken lightly, and it deserves much deliberation. Recommendations based on experience from this research study are that this decision-making process can be facilitated by considering what one's goals for the research are, what literature and previous research are available to support the direction of the research design, what practical considerations exist, and informing oneself by exploring literature about mixed methods designs. In addition, the present study used the involvement of other investigators (a member of the dissertation committee with qualitative expertise, a reliability coder) to test and provide depth to the understanding of participants' themes.

Other Limitations

In addition to these limitations that were consequences of the hybrid research design, further ones exist. All but one of the questionnaire measures of outcome in this research study (Q-LES-Q-18) were either created by the researcher(s) or were modified versions of existing measures. (However, two published mindfulness ability measures were also used.) Therefore it is possible that the outcome constructs intended to be measured were not measured appropriately. As a result, findings for this research may have incorrectly, over-, or under-estimated the relationship(s) between the treatment intervention and any outcomes. Also, due to the small sample size, inferential statistical tests were unavailable for use. Therefore, trends were evaluated by visual inference from

line graphs, and other calculations based on the slopes of these graphs represent crude approximations of inferential tests of trends or associations.

Finally, although safeguards were taken, demand characteristics, sampling bias, researcher bias (including the dual role of researcher as a coder), other biases, and trainer expertise may have influenced results, as discussed earlier. Also, within-training non-specific factors not specifically related to mindfulness may have partially accounted for improvement trends in some of the participants' quantitative scores (e.g., outcome expectancy, therapeutic alliance, treatment credibility).

Overall, these are serious limitations, and it is recommend that the outcomes and results reported here be used only as a springboard and idea pool for future research that can be designed in such a way that valid and reliable conclusions can be drawn.

Future Directions

Overall, these results preliminarily indicate that there may be some beneficial and clinically useful aspects of a mindfulness training created to be tailored to the specific experiences typically associated with individuals with schizophrenia. Quantitative results suggest that distress related to anhedonia improved as a result of this treatment intervention; and, on average participants reported that they found the training to be valuable to them.

However, due to the statistical and methodological limitations of this research, due to its exploratory nature and unique goals, reporting clinical usefulness is at best an informed tentative suggestion and any references to clinical utility in this research are done only because some qualitative and quantitative data do appear to offer some support that the training intervention has some aspects of clinical utility and contributed to some

beneficial change. For example, participant reports in the qualitative data indicate that certain aspects of quality of life were improving (e.g., relationships) during training, despite the lack of quantitative findings. Also, more important, on average participants reported on the exit interview that the training was valuable to them.

Qualitative data analyses suggest a multiplicity of possible future research directions. Possibly most important, it appears that future research may be warranted to study specifically the connection between mindfulness and self-concept. Future research may also be indicated that studies and addresses possible blocks to mindfulness training intervention that became apparent during the sessions.

A replication of this research is indicated with a revised training manual and approach based on results from this research. A comprehensive qualitative research study may be useful to assess more deeply and fully the participant experience of participating in mindfulness training. A comprehensive quantitative approach would also be useful, one in which a control group is added, sample size is larger, improved outcome measures are utilized, outcome constructs are more specific and related to this research's outcomes (e.g., hope or self-efficacy versus more general concepts of anhedonia or quality of life), and subsequent statistical tests can allow more confident inference and provide more predictive value.

Regardless of the directions that future research takes, there is great value in pursuing possible beneficial treatment for the individual with schizophrenia. Overall, the research reported here corresponds with other research indicating that, taken as a whole, mindfulness training appears to be valuable in some way to individuals with schizophrenia. One goal of the research here was to explore and attempt to identify

factors that may possibly contribute to the processes and outcomes of using mindfulness as a treatment intervention with this population. It will be worthwhile to conduct future research that continues to explore these factors and their interactions.

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Tables and Figures

Table 1

Demographic Information

Question item	min	max	*M*	*SD*
Age	24	57	37.4	11.71
Education (years)	12	18	15.1	2.18
Years with schizophrenia	4	40	17.4	12.37
	male	female		
Gender/sex	5	5		
	yes	no		
Other treatments now*	7	3		
Psychotropic medications now	10	0		
	M	*SD*		
Quality of social support**	3.7	1.16		
Drugs/alcohol per week now***	1.6	0.52		

*Non-medical treatments

**Likert scale ranging from 1 – 5, where 1=bad and 5 = good

***Likert scale ranging from 1 – 4, where 1=none and 4=5+/week

Table 2

Measures' Administration Protocol

Pre-test / Week 1	
Measures	Type
Consent form	n/a
Demographics	n/a
FFM	Quantitative
SENS	Quantitative
PSEARD	Quantitative
Q-LES-Q-18	Quantitative

During / Weeks 2 - 7	
Measures	Type
Life Events Update	Qualitative
SENS	Quantitative
PSEARD	Quantitative
Q-LES-Q-18	Quantitative
TMS	Quantitative
General Qualitative	Qualitative
+Homework	Qualitative
+Leader Rating	Qualitative

Post-test /Week 8	
Measures	Type
Life Events Update	Qualitative
SENS	Quantitative
PSEARD	Quantitative
Q-LES-Q-18	Quantitative
TMS	Quantitative
FFM	Quantitative
Exit Interview	Qualitative/Quantitative

Note: "FFM" is the Five Factor Mindfulness Questionnaire, "SENS" is the Subjective Experience of Negative Symptoms Scale (modified for this study), "PSEARD" is the Positive Symptom Experience and Related Distress Questionnaire, "Q-LES-Q-18" is the Quality of Life Enjoyment and Satisfaction Questionnaire Revised-18, and "TMS" is the Toronto Mindfulness Scale.

Table 3

Training Manual Quick Reference Sheet

Skill Content Area	**Description**
Introduction	Briefly introducing different components, foundations, and possible challenges of mindfulness.
"scientist v. judge"	Objective and neutral consideration of stimuli (scientist) versus hard-line judgment (judge).
"butterfly"	Gentle attention and approach to stimuli and perception, related to compassion.
One Thing At A Time	Focusing attention on one experience at a time.
"kite" ("reeling in")	Gently pulling in attention when it drifts away.
"anchor"	Using the breath to re-center attention to the physical self.
"pause button"	Using the breath to slow speed of perceptions and reactions.
Observe	Perceptually shifting from immediate reacting to distancing, to observe experience.
"hand in face"	Example of the difficulty of seeing the whole picture when attending too closely or fusing to certain stimuli.
"waves and beach"	Reference to moving from a place of immersion in stimuli (waves) to viewing stimuli (beach).
Describe	Allowing for neutral and more whole perceptions rather than immediate and/or habitual valenced assumptions.
"boulder and path"	Noticing how assumptions about a metaphorical boulder in one's path can restrict perceived choices.
"curious scientist"	Observing stimuli and experience with objectivity and interest.
"shoulds"	Reacting to, allowing, and perceiving stimuli as it is now rather than as it should be.
"cookie jar"	Example of how labeling an item (e.g., "cookies" on a jar) can lead one to misperceive and/or narrow the possible contents.
"dandelion"	Example of how labels for stimuli can lead to misperceptions of and habitual reactions to the stimuli.

Mindfully Enjoying	Expanding perceptions of stimuli and one's place among stimuli.
"zoom in" (camera)	Allowing for notice of small details and aspects.
"zoom out" (camera)	Allowing for notice of larger pictures and whole experiences.
"clouds"	Allowing distracting thoughts to pass like metaphorical clouds in the sky.
Being Mindful Socially	Flowing with conversation and being in the moment curiously.
Review	Summarizing what mindfulness is, with specific ideas offered and elicited on how to practice it.
"stepping to the side"	Observing and allowing perceptions to move through or past rather than only avoiding or confronting.

Table 4

Qualitative Coding Categories

	Reactions to Training
3500	Generally helpful/useful; daily life helpful/useful; seems to help overall
3501	Observe skill helpful; detachment; de-fusing
3503	In the moment helpful; being present; noticing details
3590	Non-judgment skill helpful; neutral labels; not creating 'stories'; describe skill
3601	Compassion for self helpful; gentleness of approach
3602	Accepting as is (versus should) helpful
3576	Calming helpful; relaxing
3508	Understanding own mind helpful
3801	One at a time skill helpful
3510	Talking/release in session helpful; feedback from trainer; empathy from trainer
3505	Specific activity helped (e.g. breathing); hands on/tactile
3524	Analogy from training helpful
3999	Review helpful
3900	Easier to do with thoughts than feelings/emotions
3514	Re-stating training content in own words
3504	Interested; interesting; interested in results; impressed; hadn't thought of this way
3579	Enjoy; look forward to training; want to continue
3552	Hopeful because of training
3515	States already using skill / mindfulness
3600	Helped with relationships; socially
3603	Helped with schizophrenia symptoms
3604	Helped with enjoyment; enjoying things; enjoying life more
3605	Helped with other symptoms/things
3606	Helped with self-concept; self
3580	Getting better at mindfulness; improving
3559	Doing own mindfulness skill that is helpful; own way of applying; own analogy
3506	Wish could/would do it more; need to practice
3582	Believe can be mindful; hopeful re: eventual success with mindfulness
3525	Not remembering to be mindful is problem/obstacle
3529	Training session good reminder of mindfulness; feel better 1-2 days before session
3526	Specific obstacle to mindfulness noted (e.g., isolation, physical exertion)
3568	Recognize/state it's harder to be mindful if have schizophrenia
3547	Patience with training process important
3555	Encouraging self-statement re: mindfulness/training
3556	Hard work to be mindful; honesty re: difficulty
3512	Problem doing skill in session
3571	Current non-mindful experience as reaction to training

3548	Iatrogenic; feels bad
3541	Suggestion to others re: training
3538	Felt vulnerable at a point during training (e.g., concerned re: opening up)
3586	Past/history comes up in training (e.g. trauma, childhood experience)
3587	Sadness/anger/mourning re: perceptions not 'real,' comes up in training
3570	Questionnaires made feel better; changed perspective
3531	Improve training by adding more time / sessions; follow up
3700	Improve training by adding more analogies / visuals / metaphors
3701	Improve training by developing existing skills more
3702	Improve training by making existing skills more clear
3704	Improve training by matching skills to emotions
3705	Improve training by timing skill applications (e.g. before/after emotion)
3584	Suggest improve questionnaire questions
3562	Mindfulness reminds of parts of other treatments (e.g. AA)
3585	Focus OK in training session
3591	Focus off; distracted in session
3800	Misunderstanding skill / content / application of skill / training
3901	Not expect to help; not helpful; skeptical; not sure yet
3777	No use for skill; doesn't think skill would be helpful
3900	More useful with thoughts than feelings; easier with thoughts than feelings
3993	Practicing acceptance
3994	Practicing non-judgment / describe
3995	Practicing compassion
3996	Practicing observing
3997	Practicing one at a time; noticing details; being present
3998	Can see would be helpful

Related to Training Experiences

2513	Current difficult emotional experience
2576	Emotionally sensitive (by self report)
2522	Over-focusing; over-attachment; over-thinking/ruminating
2602	Jumping to conclusions; assuming
2570	Anhedonia; not enjoying things
2502	Past non-mindful experience
2548	Current difficult experiences/challenges with others
2512	Hard on self; self-judgment harsh; feel undeserving; won't forgive self
2600	Rushed; don't know where to start / direction; overwhelmed
2543	Denial of schizophrenia; not recognizing a schizophrenia symptom as a symptom
2604	Acceptance of schizophrenia; recognize a schizophrenia symptom (current or past)
2510	Recognize reaction/behavior as not helpful
2580	Current behavior with likely negative consequences

2554	Technology (radio, tv, computer) makes schizophrenia worse (self-report)
2595	Certain experiences more triggering of distress
2551	Tension because of schizophrenia; can't let down guard; serious
2516	Feel outcast; don't matter; stigma; not OK; need façade; can't be loved
2567	Need/want empathy; validation; understanding; helpful reaction / talk; acceptance
2592	Need stated to establish boundaries; not please everyone; not abandon self
2536	Need stated to give self credit for what accomplished
2528	Past mindful experience
2503	Already using skill that could be called mindfulness
2504	Feel life has been improving in general
2594	Feel schizophrenia has been improving
2603	Feel self has been improving in general
2509	Specific helpful experience with others (including mental health providers)
2566	Want to/feel should trust others (including mental health providers)
2587	Feeling something in common with others is helpful
2599	Establishing/asserting boundaries; choosing to be alone for healthy reasons
2598	Experiencing/building self-confidence; efficacy; appreciating aspect of self
2542	Own/other tactic for dealing with schizophrenia
2539	Helpful behaviors; doing what works; own coping tactic used
2537	Helpful environmental variables (non relationship) (e.g. time, meds, weather)
2578	God/religion helpful
2601	Participating in healthy hedonic behaviors (e.g. hobbies)
2800	Enjoy schizophrenia symptoms- e.g. entertain/hope; fantasy helpful (re: symptoms)
2900	Need to find self; redefine; know; feel substantive
2700	Avoiding feeling/emotions; suppressing emotions

General Experiences

1525	Negative experience with other people (current)
1516	Negative experience with other people (past)
1507	Positive experience with other people (current)
1545	Positive experience with other people (past)
1504	Doing well in an area (currently) (e.g., job, self-esteem, meds)
1503	Loneliness; isolated; want friends or partner
1538	Schizophrenia experience; statement about schizophrenia
1502	Questions about schizophrenia; don't understand schizophrenia
1508	Struggle because of schizophrenia
1541	Feel watched; under a microscope; afraid to be noticed
1518	Mental health system problems/challenges
1510	Day-to-day life problems (e.g. job, housing)
1511	Past day-to-day problems (e.g. legal)
1537	Past emotional issues (non-schizophrenia)

1540	Vulnerabilities to mental stability noted (e.g. sleep, alcohol)
1550	Assault or abuse in past; trauma in past
1560	Health problems; dentistry problems/issues
1570	Past participation in healthy behaviors

Note: Codes are not listed numerically because they are primarily grouped conceptually.

Table 5

Reliability Coefficients for Qualitative Coding Categories

Category	**Cohen's unweighted *kappa***	***n* of useable coded units**
General experiences (1000's)	.534	314
Related to training experiences (2000's)	.515	603
Reactions to training (3000's)	.582	622
All codes	.558	1539

Note: The magnitudes of these values of *kappa* are all in the fair to moderate range of .41 - .60 (Landis & Koch, 1977).

Table 6

Frequency of Qualitative Data's Category Code Endorsement

	Participant											
Code	001	002	003	004	005	006	007	008	009	010	sum	*M*
1525	3	0	1	0	0	0	7	**4**	4	0	19	1.9
1516	*7*	2	4	2	0	0	5	0	6	**2**	28	2.8
1507	3	0	0	*3*	0	*1*	**19**	2	*11*	0	39	3.9
1545	1	0	0	0	0	0	2	0	1	0	4	0.4
1504	0	0	1	1	0	0	**10**	**10**	8	0	30	3.0
1503	*7*	2	3	0	1	**4**	3	1	4	0	25	2.5
1538	4	**10**	6	**7**	0	**6**	**15**	**10**	**20**	**4**	82	8.2
1502	0	3	0	0	0	0	3	0	0	0	6	0.6
1508	2	**11**	1	*3*	2	**7**	6	*3*	**37**	**5**	77	7.7
1541	0	0	0	2	0	0	2	0	0	1	5	0.5
1518	1	0	5	0	0	0	4	0	4	**2**	16	1.6
1510	**12**	2	**8**	**7**	**7**	*1*	**9**	**5**	*11*	1	63	6.3
1511	0	0	2	0	1	0	2	0	1	0	6	0.6
1537	4	1	3	*3*	*3*	**3**	3	0	3	0	23	2.3
1540	2	**7**	3	1	0	*1*	**11**	0	*10*	**2**	37	3.7
1550	4	0	*6*	0	**6**	*1*	7	1	4	0	29	2.9
1560	**19**	0	*5*	0	**4**	0	0	0	1	1	30	3.0
1570	2	1	1	0	2	**2**	0	0	0	0	8	0.8
2513	**22**	2	**10**	**13**	**10**	**9**	7	0	**19**	0	92	9.2
2576	1	0	1	1	0	0	5	0	1	0	9	0.9
2522	**8**	2	*7*	**5**	*3*	0	3	0	**21**	**2**	51	5.1
2602	*6*	2	1	**10**	**6**	**4**	1	0	3	1	34	3.4
2570	3	0	0	0	1	**2**	2	0	4	0	12	1.2
2502	4	2	2	1	**4**	*1*	2	0	0	0	16	1.6
2548	**14**	**5**	**10**	**12**	**16**	**6**	**21**	**7**	4	**2**	97	9.7
2512	**8**	2	**11**	1	0	0	7	0	9	0	38	3.8
2600	2	0	5	**4**	1	**3**	7	0	2	0	24	2.4
2543	0	**9**	3	1	0	0	4	0	4	0	21	2.1
2604	0	3	5	0	0	*1*	1	0	**17**	1	28	2.8
2510	**11**	1	**8**	**5**	*3*	*1*	**15**	1	**31**	**2**	78	7.8
2580	1	**6**	0	0	1	0	2	1	0	0	11	1.1
2554	1	1	6	0	0	0	1	0	*10*	0	19	1.9
2595	4	1	3	0	**5**	**3**	*8*	0	*12*	0	36	3.6

2551	0	2	0	0	0	0	0	0	7	1	10	1.0
2516	3	0	4	**9**	2	0	4	0	8	1	31	3.1
2567	2	0	4	1	2	0	3	0	**14**	1	27	2.7
2592	1	0	*7*	0	1	*1*	*8*	0	3	0	21	2.1
2536	0	0	0	0	0	0	1	0	4	0	5	0.5
2528	2	1	0	0	**4**	0	2	1	0	1	11	1.1
2503	0	3	0	1	0	0	7	0	0	**3**	14	1.4
2504	**11**	0	6	2	0	0	4	0	8	0	31	3.1
2594	0	*4*	0	1	*3*	0	1	1	2	0	12	1.2
2603	1	0	3	1	1	0	2	0	8	0	16	1.6
2509	**8**	2	**10**	2	**12**	**3**	**14**	*2*	*11*	1	65	6.5
2566	0	0	0	0	0	0	1	0	8	0	9	0.9
2587	0	0	1	0	0	0	2	0	5	0	8	0.8
2599	5	0	**20**	**4**	2	0	**11**	0	5	1	48	4.8
2598	*7*	1	5	2	2	0	**16**	0	7	1	41	4.1
2542	1	2	0	0	0	**2**	3	**12**	**16**	**6**	42	4.2
2539	**16**	**5**	**23**	*3*	**8**	**2**	**35**	**4**	**23**	1	120	12
2537	**8**	1	**11**	2	*3*	0	3	**4**	**20**	1	53	5.3
2578	1	**8**	3	0	0	*1*	0	0	2	0	15	1.5
2601	5	**10**	**16**	**4**	**8**	**6**	**14**	*2*	*12*	0	77	7.7
2800	1	1	0	0	0	0	0	1	7	1	11	1.1
2900	6	3	**9**	*3*	1	0	1	0	1	0	24	2.4
2700	2	0	0	1	1	0	0	0	0	1	5	0.5
3500	*5*	**11**	4	0	0	*1*	3	**4**	*13*	**5**	46	4.6
3501	**14**	2	**11**	1	**4**	0	4	2	*13*	**4**	55	5.5
3503	*3*	*1*	3	1	2	0	2	1	*12*	**2**	27	2.7
3590	1	**9**	5	**4**	0	0	1	0	6	0	26	2.6
3601	**10**	0	3	0	2	0	2	0	5	0	22	2.2
3602	2	1	2	1	0	*1*	2	0	5	1	15	1.5
3576	0	3	2	1	0	0	3	0	1	**2**	12	1.2
3508	2	1	1	0	0	0	1	1	1	**5**	12	1.2
3801	2	1	0	0	0	0	0	0	1	0	4	0.4
3510	2	*4*	**17**	0	2	0	*5*	2	*10*	1	43	4.3
3505	2	3	0	1	0	**2**	3	1	3	**2**	17	1.7
3524	0	**8**	3	0	*3*	0	*5*	**15**	9	0	43	4.3
3900	0	0	1	0	0	0	0	0	1	0	2	0.2
3514	**20**	**6**	*1*	0	2	0	4	**6**	*12*	0	51	5.1
3504	1	2	2	0	1	0	*4*	1	2	0	13	1.3

3579	1	2	2	0	0	0	*5*	1	2	0	13	1.3
3552	*6*	3	1	1	0	*1*	0	0	**22**	**2**	36	3.6
3515	1	1	0	0	2	0	1	**6**	0	1	12	1.2
3600	1	*4*	**10**	**4**	*3*	0	2	0	1	1	26	2.6
3603	0	**6**	1	0	0	0	0	1	1	0	9	0.9
3604	**8**	**5**	6	1	1	0	1	1	7	0	30	3.0
3605	4	2	**18**	1	1	0	2	2	4	0	34	3.4
3580	3	**8**	4	1	1	0	2	1	2	0	22	2.2
3559	**15**	*4*	**11**	*3*	**5**	*1*	*4*	**13**	8	**4**	68	6.8
3506	1	3	3	1	1	0	1	0	**27**	**2**	39	3.9
3582	1	1	1	0	0	0	0	0	9	0	12	1.2
3525	1	3	2	0	0	0	0	**5**	3	1	15	1.5
3529	1	2	1	0	0	0	0	1	2	1	8	0.8
3526	*7*	3	**9**	1	**6**	**2**	1	2	**16**	0	47	4.7
3568	0	0	3	0	2	*1*	0	0	**14**	0	20	2.0
3547	0	0	3	0	0	0	0	0	**14**	0	17	1.7
3555	4	*4*	*7*	0	0	0	0	0	**24**	0	39	3.9
3556	5	**6**	0	0	*3*	**3**	1	0	**23**	0	41	4.1
3512	0	0	0	0	0	0	1	0	0	0	1	0.1
3571	2	1	1	0	0	0	0	0	1	0	5	0.5
3548	4	0	0	0	0	0	0	0	1	0	5	0.5
3541	2	0	1	0	0	0	0	0	0	**2**	5	0.5
3538	1	0	0	0	0	0	0	0	0	1	2	0.2
3586	1	*4*	5	2	**7**	**2**	*4*	0	**17**	0	42	4.2
3587	0	0	0	0	0	0	0	0	6	0	6	0.6
3570	0	1	0	0	0	0	0	0	1	0	2	0.2
3531	1	1	1	0	0	0	1	1	0	0	5	0.5
3700	0	0	0	0	0	0	0	**7**	0	0	7	0.7
3701	0	0	0	0	0	0	1	2	1	1	5	0.5
3702	0	0	0	0	0	0	0	1	0	1	2	0.2
3704	0	0	0	0	0	0	0	1	0	0	1	0.1
3705	0	0	0	0	0	0	0	2	0	0	2	0.2
3584	0	0	0	0	0	0	1	0	0	0	1	0.1
3562	0	0	0	1	0	0	0	0	1	0	2	0.2
3585	*7*	**7**	*7*	1	1	*1*	1	1	3	**3**	32	3.2
3591	2	1	0	1	1	0	2	1	2	1	11	1.1
3606	**10**	2	**28**	**9**	0	0	**10**	1	*11*	**3**	74	7.4
3777	0	0	0	0	0	0	0	*3*	0	0	3	0.3

3800	1	**8**	0	1	1	0	0	**9**	2	**2**	24	2.4
3801	2	1	0	0	0	0	0	0	1	0	4	0.4
3901	4	0	0	0	0	*1*	0	0	0	0	5	0.5
3993	0	1	*7*	0	1	*0*	1	0	**25**	1	36	3.6
3994	2	3	**10**	**4**	0	*0*	1	1	**16**	0	37	3.7
3995	4	1	**9**	0	0	*0*	0	0	**16**	0	30	3.0
3996	**8**	*4*	**9**	**5**	*3*	*0*	2	2	*13*	0	46	4.6
3997	2	**5**	2	0	**4**	*0*	*5*	0	4	**2**	24	2.4
3998	2	0	0	0	0	*0*	0	0	0	0	2	0.2
3999	0	1	0	0	0	0	0	0	0	1	2	0.2
M	3.48	2.25	3.87	1.38	1.55	0.73	3.49	1.43	6.95	0.82		
SD	4.59	2.83	4.63	2.41	2.70	1.63	5.25	2.91	7.60	1.28		
cutoff*	8.07	5.08	8.50	3.79	4.26	2.36	8.74	4.34	14.55	2.10		

Note: Numbers in cells indicate the frequency of endorsement of the category by the participant. Bold font items indicate those that are at or above the cutoff. Italic font items indicate those that are slightly below the cutoff.

* "cutoff" is the sum of the *M* and *SD*.

Table 7

Most Frequently Endorsed Code Categories by Participant

Participant 001

Code	# Times Endorsed *cutoff: 8	Category Description
		Reactions to Training:
3514	20	Re-stating training content in own words
3501	14	Observe skill helpful
3559	15	Applying mindfulness own way
3606	10	Training helped with self-concept
3601	10	Compassion / gentleness helpful
3604	8	Training helped with enjoying life more
3996	8	Practicing observe skill
3585	*7*	*Focus OK in training*
3526	*7*	*Specific obstacle to mindfulness noted*
3552	*6*	*Hopeful because of training*
		Related to Training Experiences:
2513	22	Current difficult emotional experience
2539	16	Helpful behavior/thinking of own
2548	14	Current difficult experiences with others
2510	11	Recognize reaction as not helpful
2504	11	Feel life is improving
2522	8	Over-focusing/attachment/overthinking
2509	8	Specific helpful experience with others
2537	8	Helpful environmental variables
2512	8	Hard on self / self-judgment
2598	*7*	*Experiencing/building self-confidence*
2602	*6*	*Jumping to conclusions/assuming*
		General Experiences:
1560	19	Health problems
1510	12	Day to day life problems
1516	*7*	*Past negative experience with others*
1503	*6*	*Loneliness/isolated*

Participant 002

Code	# Times Endorsed *cutoff: 5	Category Description
		Reactions to Training:
3500	11	Training generally useful/helpful
3590	9	Describe skill helpful
3580	8	Getting better at mindfulness/improving
3524	8	Analogy from training helpful
3800	8	Misunderstanding training skill/content
3585	7	Focus OK in training
3603	6	Training helped with schizophrenia symptoms
3514	6	Re-stating training content in own words
3556	6	Hard work to be mindful
3604	5	Training helped with enjoying life more
3997	5	Practicing being present
3586	*4*	*Past emotional issue comes up in training*
3510	*4*	*Talking in session in general helpful*
3600	*4*	*Training helped with relationships*
3559	*4*	*Applying mindfulness own way*
3555	*4*	*Encouraging self-statement re: training/mindfulness*
3996	*4*	*Practicing observe skill*
		Related to Training Experiences:
2601	10	Participating in enjoyable healthy behaviors
2543	9	Denial of schizophrenia
2578	8	God/religion helpful
2580	6	Current behavior with likely negative consequences
2548	5	Current difficult experiences with others
2539	5	Helpful behavior/thinking of own
2594	*4*	*Feel schizophrenia improving*
		General Experiences:
1508	11	Struggle because of schizophrenia
1538	10	Schizophrenia experience
1540	7	Vulnerabilities to mood noted
1502	*4*	*Questions about schizophrenia*

Participant 003

Code	# Times Endorsed *cutoff: 9	Category Description
		Reactions to Training:
3606	28	Training helped with self-concept
3605	18	Training helped with other symptoms
3510	17	Talking in session in general helpful
3501	11	Observe skill helpful
3559	11	Applying mindfulness own way
3600	10	Training helped with relationships
3994	10	Practicing non-judgment skill
3526	9	Specific obstacle to mindfulness noted
3995	9	Practicing compassion sub-skill
3996	9	Practicing observe skill
3585	*7*	*Focus OK in training*
3993	*7*	*Practicing acceptance as is sub-skill*
3604	*6*	*Training helped with enjoying life more*
		Related to Training Experiences:
2539	23	Helpful behavior/thinking of own
2599	20	Asserting boundaries
2601	16	Participating in enjoyable healthy behaviors
2537	11	Helpful environmental variables
2512	11	Hard on self / self-judgment
2548	10	Current difficult experiences with others
2509	10	Specific helpful experiences with others
2513	10	Current difficult emotional experience
2900	9	Need to find/know self
2510	*8*	*Recognize reaction as not helpful*
2522	*7*	*Over-focusing/attachment/overthinking*
2592	*7*	*Stated need to establish boundaries*
		General Experiences:
1510	*8*	*Day to day life problems*
1538	*6*	*Schizophrenia experience*
1550	*6*	*Assault or abuse in past*
1560	*5*	*Health problems*
1518	*5*	*Mental health system problems*

Participant 004

Code	# Times Endorsed *cutoff: 4	Category Description
		Reactions to Training:
3606	9	Training helped with self-concept
3996	5	Practicing observe skill
3590	4	Describe skill helpful
3600	4	Training helped with relationships
3994	4	Practicing non-judgment skill
3559	*3*	*Applying mindfulness own way*
		Related to Training Experiences:
2513	13	Current difficult emotional experience
2548	12	Current difficult experiences with others
2602	10	Jumping to conclusions/assuming
2516	9	Feel don't matter/outcast/stigmatized/unaccepted
2522	5	Over-focusing/attachment/overthinking
2510	5	Recognize reaction as not helpful
2599	4	Asserting boundaries
2601	4	Participating in enjoyable healthy behaviors
2600	4	Rushed/overwhelmed/don't know direction
2539	*3*	*Helpful behavior/thinking of own*
2900	*3*	*Need to find/know self*
		General Experiences:
1538	7	Schizophrenia experience
1510	7	Day to day life problems
1508	*3*	*Struggle because of schizophrenia*
1537	*3*	*Past emotional issues (non-schizophrenia)*
1507	*3*	*Current positive experience with others*

Participant 005

Code	# Times Endorsed *cutoff: 4	Category Description
		Reactions to Training:
3586	7	Past emotional issues come up in training
3526	6	Specific obstacle to mindfulness noted
3559	5	Applying mindfulness own way
3501	4	Observe skill helpful
3997	4	Practicing being present
3600	*3*	*Training helped with relationships*
3556	*3*	*Hard work to be mindful*
3524	*3*	*Analogy from training helpful*
3996	*3*	*Practicing observe skill*
		Related to Training Experiences:
2548	16	Current difficult experiences with others
2509	12	Specific helpful experience with others
2513	10	Current difficult emotional experience
2601	8	Participating in enjoyable healthy behaviors
2539	8	Helpful behavior/thinking of own
2602	6	Jumping to conclusions/assuming
2595	5	Certain experiences more triggering distress
2502	4	Past non-mindful experience noted
2528	4	Past mindful experience noted
2522	*3*	*Over-focusing/attachment/overthinking*
2510	*3*	*Recognize reaction as not helpful*
2594	*3*	*Feel schizophrenia improving*
2537	*3*	*Helpful environmental variables*
		General Experiences:
1510	7	Day to day life problems
1550	6	Assault or abuse past
1560	4	Health problems
1537	*3*	*Past emotional issues (non-schizophrenia)*

Participant 006

Code	# Times Endorsed *cutoff: 2	Category Description
		Reactions to Training:
3556	3	Hard work to be mindful
3505	2	Specific training activity helped
3526	2	Specific obstacle to mindfulness noted
3586	2	Past emotional issues come up in training
3500	*1*	*Training generally useful/helpful*
		Related to Training Experiences:
2513	9	Current difficult emotional experience
2548	6	Current difficult experiences with others
2601	6	Participating in enjoyable healthy behaviors
2602	4	Jumping to conclusions/assuming
2600	3	Rushed/overwhelmed/don't know direction
2595	3	Certain experiences more triggering distress
2509	3	Specific helpful experience with others
2570	2	Anhedonia/not enjoying things
2542	2	Own/other tactic for coping with schizophrenia
2539	2	Helpful behavior/thinking of own
		General Experiences:
1508	7	Struggle because of schizophrenia
1538	6	Schizophrenia experience
1503	4	Loneliness/isolated
1537	3	Past emotional issues (non-schizophrenia)
1570	2	Past participation in enjoyable healthy behaviors

Participant 007

Code	# Times Endorsed *cutoff: 9	Category Description
		Reactions to Training:
3606	10	Training helped with self-concept
3997	*5*	*Practicing being present*
3579	*5*	*Enjoy / look forward to training*
3524	*5*	*Analogy from training helpful*
3510	*5*	*Talking in session in general helpful*
3586	*4*	*Past emotional issue comes up in training*
3559	*4*	Applying mindfulness own way
3504	*4*	*Training is interesting*
		Related to Training Experiences:
2539	35	Helpful behavior/thinking of own
2548	21	Current difficult experiences with others
2598	16	Experiencing/building self-confidence
2510	15	Recognize reaction as not helpful
2509	14	Specific helpful experience with others
2601	14	Participating in enjoyable healthy behaviors
2599	11	Asserting boundaries
2595	*8*	*Certain experiences more triggering distress*
2592	*8*	*Stated need to establish boundaries*
		General Experiences:
1507	19	Current positive experience with others
1538	15	Schizophrenia experience
1540	11	Vulnerabilities to mood noted
1504	10	Doing well in life area
1510	9	Day to day life problems

Participant 008

Code	# Times Endorsed *cutoff: 4	Category Description
		Reactions to Training:
3524	15	Analogy from training helpful
3559	13	Applying mindfulness own way
3800	9	Misunderstanding training skill/content
3700	7	Improve training with additional analogies/metaphors
3514	6	Re-stating training content in own words
3515	6	States already using skill / mindfulness
3525	5	Not remembering to be mindful is obstacle
3500	4	Training generally useful/helpful
		Related to Training Experiences:
2542	12	Own/other tactic for coping with schizophrenia
2548	7	Current difficult experiences with others
2539	4	Helpful behavior/thinking of own
2537	4	Helpful environmental variables
2509	*2*	*Specific helpful experience with others*
2601	*2*	*Participating in enjoyable healthy behaviors*
		General Experiences:
1504	10	Doing well in life area
1538	10	Schizophrenia experience
1510	5	Day to day life problems
1525	4	Current negative experience with others
1508	*3*	*Struggle because of schizophrenia*

Participant 009

Code	# Times Endorsed *cutoff: 15	Category Description
		Reactions to Training:
3506	27	Need practice / wish would do it more
3993	25	Practicing acceptance as is sub-skill
3555	24	Encouraging self-statement re: training/mindfulness
3556	23	Hard work to be mindful
3552	22	Hopeful because of training
3586	17	Past emotional issue comes up in training
3526	16	Specific obstacle to mindfulness noted
3994	16	Practicing non-judgment skill
3995	16	Practicing compassion sub-skill
3568	*14*	*Harder to be mindful if have schizophrenia*
3547	*14*	*Patience with training process important*
3996	*13*	*Practicing observe skill*
3501	*13*	*Observe skill helpful*
3500	*13*	*Training generally useful/helpful*
		Related to Training Experiences:
2510	31	Recognize reaction as not helpful
2539	23	Helpful behavior/thinking of own
2522	21	Over-focusing/attachment/overthinking
2537	20	Helpful environmental variables
2513	19	Current difficult emotional experience
2604	17	Acceptance of schizophrenia or symptom
2542	16	Own/other tactic for coping with schizophrenia
2567	*14*	*Need/want empathy/validation/understanding*
2601	*12*	*Participating in enjoyable healthy behaviors*
		General Experiences:
1508	37	Struggle because of schizophrenia
1538	20	Schizophrenia experience
1507	*11*	*Current positive experience with others*
1510	*11*	*Day to day life problems*
1540	*10*	*Vulnerabilities to mood noted*

Participant 010

Code	# Times Endorsed *cutoff: 2	Category Description
		Reactions to Training:
3500	5	Training generally useful/helpful
3508	5	Understanding own mind helpful
3501	4	Observe skill helpful
3559	4	Applying mindfulness own way
3585	3	Focus OK in training
3606	3	Training helped with self-concept
3503	2	Being present/in the moment helpful
3576	2	Helpful because calming/relaxing
3505	2	Specific training activity helped
3552	2	Hopeful because of training
3506	2	Need practice / wish would do it more
3541	2	Suggestion to others about training
3800	2	Misunderstanding training skill/content
3997	2	Practicing being present
		Related to Training Experiences:
2542	6	Own/other tactic for coping with schizophrenia
2503	3	Already using skill that could be called mindfulness
2522	2	Over-focusing/attachment/overthinking
2548	2	Current difficult experiences with others
2510	2	Recognize reaction as not helpful
		General Experiences:
1508	5	Struggle because of schizophrenia
1538	4	Schizophrenia experience
1516	2	Past negative experience with others
1518	2	Mental health system problems
1540	2	Vulnerabilities to mood noted

Note: Italics indicate that the coded category was endorsed at a frequency slightly below the cutoff.

* "cutoff" is derived by adding the *M* of all code endorsement frequency for each participant to one *SD*; see Method section and Table 6 for further description.

Table 8

Coded Categories Most Frequently Endorsed by Individual Participants

Code	# Participants	Category Description
		Reactions to Training:
3559	**5**	**Applying mindfulness own way**
3501	**4**	**Observe skill helpful**
3606	**4**	**Training helped with self-concept**
3500	3	Training generally useful/helpful
3524	3	Analogy from training helpful
3514	2	Re-stating training content in own words
3590	2	Describe skill helpful
3800	2	Misunderstanding training skill/content
3510	2	Talking in session in general helpful
3586	2	Past emotional issues come up in training
3526	2	Specific obstacle to mindfulness noted
3997	2	Practicing being present
3601	1	Compassion / gentleness helpful
3580	1	Getting better at mindfulness/improving
3605	1	Training helped with other symptoms
3996	1	Practicing observe skill
3600	1	Training helped with relationships
3994	1	Practicing non-judgment skill
3556	1	Hard work to be mindful
3505	1	Specific training activity helped
3579	1	Enjoy / look forward to training
3700	1	Improve training with additional analogies/metaphors
3506	1	Need practice / wish would do it more
3993	1	Practicing acceptance as is sub-skill
3555	1	Encouraging self-statement re: training/mindfulness
3556	1	Hard work to be mindful
3552	1	Hopeful because of training
3508	1	Understanding own mind helpful
3585	1	Focus OK in training
		Related to Training Experiences:
2548	**8**	**Current difficult experiences with others**
2539	**6**	**Helpful behavior/thinking of own**
2513	**5**	**Current difficult emotional experience**
2510	4	Recognize reaction as not helpful

2601	4	Participating in enjoyable healthy behaviors
2537	3	Helpful environmental variables
2522	3	Over-focusing/attachment/overthinking
2509	3	Specific helpful experience with others
2602	2	Jumping to conclusions/assuming
2542	2	Own/other tactic for coping with schizophrenia
2504	1	Feel life is improving
2543	1	Denial of schizophrenia
2578	1	God/religion helpful
2580	1	Current behavior with likely negative consequences
2512	1	Hard on self / self-judgment
2516	1	Feel don't matter/outcast/stigmatized/unaccepted
2600	1	Rushed/overwhelmed/don't know direction
2598	1	Experiencing/building self-confidence/efficacy/self
2503	1	Already using skill that could be called mindfulness
2599	1	Asserting boundaries
		General Experiences:
1538	**8**	**Schizophrenia experience**
1510	**5**	**Day to day life problems**
1508	**5**	**Struggle because of schizophrenia**
1560	2	Health problems
1516	2	Past negative experience with others
1507	2	Current positive experience with others
1540	2	Vulnerabilities to mood noted
1550	2	Assault or abuse in past
1503	1	Loneliness/isolated
1504	1	Doing well in life area

Note: Bold font text indicates the top three coded categories that were endorsed the most frequently by the highest number of participants.

Table 9

Quantitative Data Results Summary with Treatment Indication Examples

Quantitative Data Result	**Treatment Indication Examples**
No across-participant improvement trend in distress related to positive symptoms.	Improve training; improve measurement; consider tailoring to specific level/variation of symptom experience.
No across-participant improvement trend in quality of life.	Improve training (e.g., more time on Enjoy skill); improve measurement.
No across-participant improvement trend in anhedonia.	Improve training (e.g., create a Compassion skill and apply to anhedonia specifically); improve measurement; remove as outcome variable.
Across-participant improvement trend in distress related to anhedonia.	Directly address this outcome area in training to further enhance; further address with non-judgment and compassion sub-components.
No associations found between mindfulness ability level improvement and improving dependent variable outcomes.	Improve training in general (e.g., more time or practice, more reminder cues, more hands-on activities); improve measurement.
Exit interview data indicates that on average participants found training to be valuable to them.	Future research to discover more information on what was valuable, and what was not.

Table 10

Qualitative Coded Categories' Data Frequency Analysis Results Summary with Treatment Indication Examples

Coded Category	**Realm***	**Treatment Indication Examples**
Applying mindfulness own way	Reaction*	Develop individual "mini-manuals" with analogies, metaphors, visuals, and activities that are ideas and preferences tailored to each participant as their ways of describing, understanding, and applying mindfulness.
Observe skill helpful	Reaction*	Retain this skill in the training manual; explore applying this skill to more areas of functioning (e.g., difficult experiences with others).
Training helped with self-concept	Reaction*	Add to and modify training to directly address the experience of a changing (e.g., centered, efficacious) self-concept, as it occurs within the context of mindfulness application and training.
Current difficult experiences with others	Related*	Consider retaining the Social mindfulness skill; consider adding Compassion as a main skill topic and utilizing it with other people as well as one's self.
Helpful behavior/thinking of own	Related*	Consider ways of connecting participant's own healthy behavior to mindfulness skills; create a skill "tool box" with participant that includes these healthy behaviors, and mindfulness skills.
Current difficult emotional experience	Related*	Tailor training to better address emotional experience, either as related to schizophrenia or as an adjunct; add activities and practices to more comprehensively address emotion with mindfulness skills.
Schizophrenia experience	General*	Retain the tailoring of the training manual to experiences related to schizophrenia; modify training manual to better address experiences related to schizophrenia.

Day to day life problems	General*	Modify training manual to add additional suggestions and discussion about applying mindfulness to everyday life (not just schizophrenia experiences); discuss these problems as opportunities for mindfulness versus blocks to mindfulness practice.
Struggle because of schizophrenia	General*	Retain empathy and validation of trainer, in order to provide a safe container in which the participant can determine how to apply mindfulness to these issues (e.g., stigma, feeling unacceptable).

Note: These thematic categories represent those most frequently endorsed across all participants, as seen in Table 8 and described in the Method and Results sections. Table 7 displays coded categories endorsed by each individual participant, and Table 20 displays categories endorsed by the highest number of participants.

* "Realm" indicates the research question area into which the category was coded ("Reaction" = reaction to training, "Related" = related to training experience, "General" = general experience). See hypotheses and research questions in the Introduction, and the Method section for further description.

Table 11

Qualitative Data Results Participants' Specific Feedback Summary with Treatment Indication Examples

Participants' Specific Feedback	**Treatment Indication Examples**
Suggested Improvements:	
Make more accessible to memory	More hands-on activities; more reminder cue ideas; tailor and name skills and analogies for each participant; check- ins during the week; follow ups after sessions, and end of training.
Condense and intensify training	Change format to fewer days with more time spent each day on training (e.g., 10-day training, meeting once a day for 3 hours, with breaks).
Remove Social mindfulness skill	Consider removal of Social mindfulness skill; modify Social mindfulness skill to make it more useful and/or tailored to the participants.
Extended time in sessions	Modify treatment sessions to make each session longer (e.g., 1.5 hours per week, not including time for data collection/questionnaires).
More breathing practice	Use breathing skill practice more often in training; consider conducting a guided mindfulness breathing practice when doing a weekly phone check-in.
Use more visual analogies	Create and utilize more visual analogies; use participants' ideas for the way they visualize mindfulness skills; rename skills based on visual analogies (e.g., "Curious Scientist").
Increased reinforcement that participant is doing mindfulness correctly	Increase positive reinforcement; check in more often to ensure skills are understood; elicit participant's own encouraging self-statements.
Understand difficulty of applying to acute positive symptoms	Validate this difficulty; add to training manual as discussion topic; differentiate timing (e.g., with very acute symptoms, may not be able to use mindfulness in the moment, but perhaps afterwards).

Considered As Most Helpful:	
All of the skills were helpful, Social less so	Consider removal of Social mindfulness skill; modify Social mindfulness skill to make it more useful, applicable.
Compassion and gentleness were helpful	Emphasize this aspect in training; consider adding this as a specific skill topic.
Mindful breathing helpful	Increase frequency of this practice in session, and assigned out of session or done as an out-of-session phone check-in guided practice.
Visual analogies helpful	Increase number of visual analogies; brainstorm analogies with participant in session, tailored to each participant; consider naming skills after analogies.
Hands on activities helpful	Increase frequency of these activities in session, and assigned out of session; generate more ideas of hands-on activities and add to training manual.
Mental activities helpful	Increase frequency of these activities in session, and assigned out of session; generate more ideas of mental activities and add to training manual.
Understanding the mind was helpful	Consider adding didactic section to the training manual on how the brain with schizophrenia can work, and how mindfulness works in the brain.
Insights into one's specific mind helpful	Consider adding more time in sessions to allow for achievement of these insights; continue using worksheets to help elicit insights; include these insights into a tailored "mini-manual" for each participant.
Validation and empathy from trainer helpful	Ensure that trainers who deliver this training are able to provide a safe, genuine, respectful, empathetic, validating environment.
Catharsis in session helpful	Extend session time/number to allow for a designated block of "talking time" catharsis; flexibly allow for catharsis as issues come up; brainstorm with the participant ways to achieve catharsis through other avenues.

Table 13

Trends Across Participants for Each Dependent Variables' Measure

Participant	PSEARD Distress	SENS 1 Behavior	SENS 2 Distress	Q-LES-Q-18	Trend* Sum	Overall Trends
001	neg (-1)	pos (+1)	pos (+1)	neu (0)	pos +1	
002	neg (-1)	neg (-1)	neu (0)	neu (0)	neg -2	**Participants**
003	neg (-1)	pos (+1)	pos (+1)	pos (+1)	pos +2	60% positive
004	neu (0)	pos (+1)	pos (+1)	neu (0)	pos +2	20% negative
005	neu (0)	neu (0)	pos (+1)	pos (+1)	pos +2	20% neutral
006	pos (+1)	neg (-1)	pos (+1)	pos (+1)	pos +2	
007	neu (0)	neg (-1)	pos (+1)	neu (0)	neu 0	**Measures**
008	pos (+1)	neu (0)	neu (0)	neu (0)	pos +1	50% positive
009	neu (0)	neg (-1)	neu (0)	neg (-1)	neg -2	50% negative
010	neg (-1)	neu (0)	pos (+1)	neu (0)	neu 0	
Overall	neg -2	neg -1	pos +7	pos +2	pos +6	

Notes: pos = clinically positive trend; neg = clinically negative trend; neu = clinically neutral/no-change trend.

"PSEARD" is the Positive Symptom Experience and Related Distress questionnaire; "SENS 1" is the Subjective Experience of Negative Symptoms Scale for behaviors, modified; "SENS 2" is the Subjective Experience of Negative Symptoms Scale for distress associated with behaviors, modified; "Q-LES-Q-18" is the Quality of Life Enjoyment and Satisfaction Questionnaire Revised-18.

* "Trend" indicates the clinically positive or negative direction of the trend.

Table 14
Summary of Trends Across Dependent Variables' Measures

Trend Line	PSEARD Distress (Positive Symptom-Related Distress)	SENS Behavior (Anhedonia Symptom Behavior)	SENS Distress (Anhedonia Symptom-Related Distress)	Q-LES-Q-18 (Quality of Life)
Clinically positive	2	3	7	3
Clinically negative	4	4	0	1
Clinically neutral	4	3	3	6
Overall	**-2**	**-1**	**+7**	**+2**

Note: "PSEARD" is the Positive Symptom Experience and Related Distress questionnaire; "SENS 1" is the Subjective Experience of Negative Symptoms Scale for behaviors, modified; "SENS 2" is the Subjective Experience of Negative Symptoms Scale for distress associated with behaviors, modified; "Q-LES-Q-18" is the Quality of Life Enjoyment and Satisfaction Questionnaire Revised-18.

Table 15

Associations Between Trends on Measures of Mindfulness and Distress Related to Anhedonia

Participant	SENS 2	TMS	**Association**	SENS 2	FFM	**Association**
001	improved	improved	**expected**	improved	improved	**expected**
002	static	improved	**unexpected**	static	improved	**unexpected**
003	improved	improved	**expected**	improved	improved	**expected**
004	improved	worsened	**unexpected**	improved	-	**-**
005	improved	static	**unexpected**	improved	worsened	**unexpected**
006	improved	-	**-**	improved	-	**-**
007	improved	worsened	**unexpected**	improved	worsened	**unexpected**
008	static	static	**unexpected**	static	improved	**unexpected**
009	static	improved	**unexpected**	static	static	**unexpected**
010	improved	worsened	**unexpected**	improved	worsened	**unexpected**
	Expected		**2**	Expected		**2**
	Unexpected		**7**	Unexpected		**6**
	Proportion As Expected		**2/9**	Proportion As Expected		**2/8**
	% As Expected		**22%**	% As Expected		**25%**

*Notes***:** A dash (-) indicates missing data.

The term "worsened" relates to a clinically negative trend, the term "improved" relates to a clinically positive trend, and the term "static" relates to a clinically neutral trend.

"SENS 2" is the Subjective Experience of Negative Symptoms modified Anhedonia subscale that measured reported distress related to anhedonia; "TMS" is the Toronto Mindfulness Scale that measured reported mindfulness ability directly after mindfulness practice in each of the training sessions; "FFM" is the Five Factor Mindfulness questionnaire that measured reported general mindfulness ability at pre-test and post-test.

Table 16

Associations Between Trends on Measures of Mindfulness and Quality of Life

Participant	Q-LES-Q-18	TMS	**Association**	Q-LES-Q-18	FFM	**Association**
001	static	improved	**unexpected**	static	improved	**unexpected**
002	static	improved	**unexpected**	static	improved	**unexpected**
003	improved	improved	**expected**	improved	improved	**expected**
004	static	worsened	**unexpected**	static	-	**-**
005	improved	static	**unexpected**	improved	worsened	**unexpected**
006	improved	-	**-**	improved	-	**-**
007	static	worsened	**unexpected**	static	worsened	**unexpected**
008	static	static	**unexpected**	static	improved	**unexpected**
009	worsened	improved	**unexpected**	worsened	static	**unexpected**
010	static	worsened	**unexpected**	static	worsened	**unexpected**
	Expected		**1**	Expected		**1**
	Unexpected		**8**	Unexpected		**7**
	Proportion As Expected		**1/9**	Proportion As Expected		**1/8**
	% As Expected		**11%**	% As Expected		**13%**

Notes: A dash (-) indicates missing data.

The term "worsened" relates to a clinically negative trend, the term "improved" relates to a clinically positive trend, and the term "static" relates to a clinically neutral trend.

"Q-LES-Q-18" is the Quality of Life Enjoyment and Satisfaction Questionnaire Revised-18 that measured reported quality of life; "TMS" is the Toronto Mindfulness Scale that measured reported mindfulness ability directly after mindfulness practice in each of the training sessions; "FFM" is the Five Factor Mindfulness questionnaire that measured reported general mindfulness ability at pre-test and post-test.

Table 17

Associations Between Trends on Measures of Mindfulness and Distress Related to Positive Symptoms

Participant	PSEARD	TMS	**Association**	PSEARD	FFM	**Association**
001	worsened	improved	**unexpected**	worsened	improved	**unexpected**
002	worsened	improved	**unexpected**	worsened	improved	**unexpected**
003	worsened	improved	**unexpected**	worsened	improved	**unexpected**
004	static	worsened	**unexpected**	static	-	**-**
005	static	static	**unexpected**	static	worsened	**unexpected**
006	improved	-	**-**	improved	-	**-**
007	static	worsened	**unexpected**	static	worsened	**unexpected**
008	improved	static	**unexpected**	improved	improved	**expected**
009	static	improved	**unexpected**	static	static	**unexpected**
010	worsened	worsened	**unexpected**	worsened	worsened	**unexpected**
	Expected		**0**	Expected		**1**
	Unexpected		**9**	Unexpected		**7**
	Proportion As Expected		**0/9**	Proportion As Expected		**1/8**
	% As Expected		**0%**	% As Expected		**13%**

Notes: A dash (-) indicates missing data.

The term "worsened" relates to a clinically negative trend, the term "improved" relates to a clinically positive trend, and the term "static" relates to a clinically neutral trend.

"PSEARD" is the Positive Symptom Experience and Associated Distress questionnaire that measured reported distress related to positive symptoms; "TMS" is the Toronto Mindfulness Scale that measured reported mindfulness ability directly after mindfulness practice in each of the training sessions; "FFM "is the Five Factor Mindfulness questionnaire that measured reported general mindfulness ability at pre-test and post-test.

Table 18

Associations Between Trends on Measures of Mindfulness and the Negative Symptom of Anhedonia

Participant	SENS 1	TMS	**Association**	SENS 1	FFM	**Association**
001	improved	improved	**expected**	improved	improved	**expected**
002	worsened	improved	**unexpected**	worsened	improved	**unexpected**
003	improved	improved	**expected**	improved	improved	**expected**
004	improved	worsened	**unexpected**	improved	-	**-**
005	static	static	**unexpected**	static	worsened	**unexpected**
006	worsened	-	**-**	worsened	-	**-**
007	worsened	worsened	**unexpected**	worsened	worsened	**unexpected**
008	static	static	**unexpected**	static	improved	**unexpected**
009	worsened	improved	**unexpected**	worsened	static	**unexpected**
010	static	worsened	**unexpected**	static	worsened	**unexpected**
	Expected		**2**	Expected		**2**
	Unexpected		**7**	Unexpected		**6**
	Proportion As Expected		**2/9**	Proportion As Expected		**2/8**
	% As Expected		**22%**	% As Expected		**25%**

Notes: A dash (-) indicates missing data.

The term "worsened" relates to a clinically negative trend, the term "improved" relates to a clinically positive trend, and the term "static" relates to a clinically neutral trend.

"SENS 1" is the Subjective Experience of Negative Symptoms modified Anhedonia subscale that measured behaviors and symptoms related to anhedonia; "TMS" is the Toronto Mindfulness Scale that measured reported mindfulness ability directly after mindfulness practice in each of the training sessions; "FFM" is the Five Factor Mindfulness questionnaire that measured reported general mindfulness ability at pre-test and post-test.

Table 19

Exit Interview Data Results

	Participant									
Question*	001	002	003	005	007	008	009	010	***M***	*SD*
Valuable for you	4	4	4	4	3	2	3	3	**3.38**	0.74
Valuable for others	3	4	4	4	3	4	4	3	**3.63**	0.52
Valuable trainer's feedback/support	4	4	4	4	4	3	3	3	**3.63**	0.52
Valuable sharing experience	4	4	4	3	4	3	4	2	**3.50**	0.76
Often practicing mindfulness	3	3	3	3	2	1	2	1	**2.25**	0.89
Understandable mindfulness skills	4	3	4	3	3	3	2	4	**3.25**	0.71
Mean (*M*) for each participant	**3.67**	**3.67**	**3.83**	**3.50**	**3.17**	**2.67**	**3.00**	**2.67**		
Standard deviation (*SD*)	0.52	0.52	0.41	0.55	0.75	1.03	0.89	1.03		

* Question answers were chosen from a Likert scale that ranged from 0, “not at all” to 4, “very much.”

Table 20
Coded Categories Endorsed by the Most Participants

Code	# Participants	Category Description
		Reaction to Training:
3559	10	Doing own mindfulness skill/application
3585	10	Focus OK in training session
3501	9	Observe skill helpful
3503	9	Being in the moment/present sub-skill helpful
3526	9	Specific obstacle to mindfulness noted
3500	8	Mindfulness training generally useful/helpful
3602	8	Accepting as is sub-skill helpful
3510	8	Talking in session in general helpful
3505	8	Specific training activity helped
3600	8	Training helped with relationships/socially
3604	8	Training helped with life enjoyment/pleasure
3605	8	Training helped with other symptoms
3606	8	Training helped with self-concept
3580	8	Getting better at mindfulness
3506	8	Need to practice more/wish would do it more
3586	8	Past issue comes up in training
3591	8	Focus off in session
3996	8	Practicing observe skill
		Experiences Related to Training:
2548	10	Challenge with others
2510	10	Recognize reaction/behavior as not helpful
2509	10	Specific helpful experience with others
2539	10	Own helpful coping skill
2537	9	Helpful environmental variables
2601	9	Participating in healthy hedonic behavior
2513	8	Current difficult emotional experience

		General Experiences:
1508	10	Struggle because of schizophrenia
1510	10	Day to day life problems
1538	9	Schizophrenia experience
1503	8	Loneliness/isolated
1537	8	Past emotional issues (non-schizophrenia)
1540	8	Vulnerabilities to mental stability noted

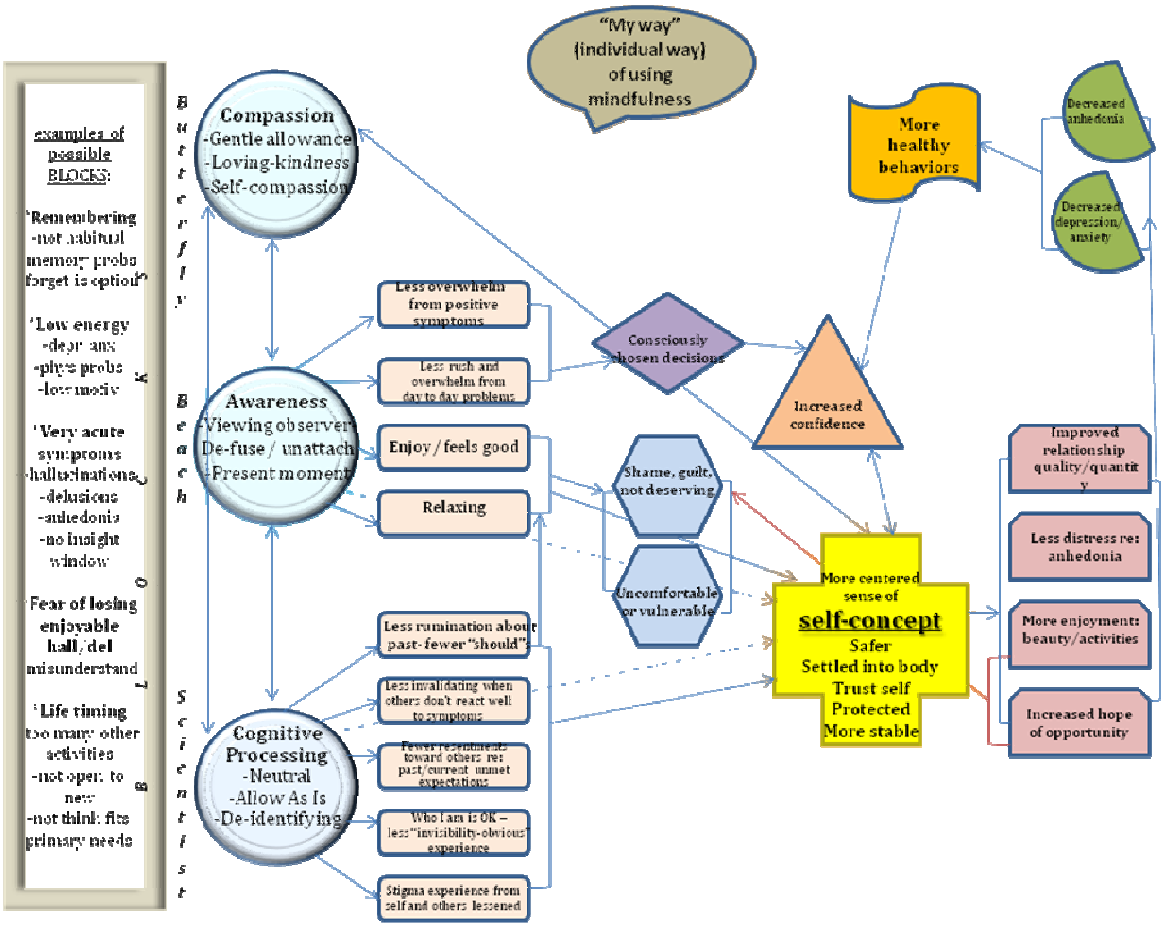

Figure 7. Conceptual model for considerations in organizing and conducting mindfulness training: A reference of possible directions for mindfulness trainers working with similar populations.

Appendices

Appendix A

Proposed Mechanisms of Change: Mindfulness Training for Schizophrenia

Schizophrenia Disorders' Diagnostic Characteristics	Primary Therapeutically Relevant Mindfulness Characteristic(s)
-Positive symptoms:	
Psychotic dimension:	
-hallucinations (distortion in perception)	-(unlikely to address)
→ (associated distress: e.g., paranoia, fear, anxiety, disorientation, confusion, helplessness, anger, tension, vulnerability)	→Awareness/Observing Present in the Now Neutrality Allow It As Is Gentleness De-Fusing De-Identifying Curiosity React Consciously
-delusions (distortion in thought content)	-(unlikely to address)
→ (associated distress: e.g., paranoia, fear, anxiety, disorientation, confusion, helplessness, anger, tension, vulnerability)	→Awareness/Observing Present in the Now Neutrality Allow It As Is Gentleness De-Fusing De-Identifying Curiosity React Consciously
Disorganized dimension:	
-disorganized speech (distortion in language)	(unlikely to address)
-disorganized behavior /catatonia	(unlikely to address)
-Negative symptoms:	
-alogia (of thought/speech productivity/fluency)	(unlikely to address)

-affective flattening (of emotion range/intensity)	(unlikely to address)
-avolition	(unlikely to address)
-Associated features:	
→anhedonia (loss of interest or pleasure) (associated distress)	→Awareness/Observing Present in the Now Gentleness Compassion De-Fusing De-Identifying
(included in 'quality of life' general category) →dysphoric mood (e.g., depression, anxiety, anger)	→Awareness/Observing Present in the Now Neutrality Allowing It As Is Gentleness Compassion De-Fusing De-Identifying Curiosity Reacting Consciously
-sleep/eating problems	(unlikely to address)
-psychomotor abnormalities (stereotypic)	(unlikely to address)
-cognitive (attention, concentration, memory)	(unlikely to address; may address as secondary reactions- e.g., less distracted by halluc/delus. if successfully treated with mindfulness. -not primary target)

Schizophrenia Symptom Experience

-e.g., hallucination, delusion, anhedonia

|

| (may also go directly to emotional experience)

\/

Cognitive Reaction Possibilities

<POSSIBLE MINDFULNESS INTERVENTION>

e.g., observe, notice, wait to pass, watch curiously/neutrally, be present in the "now" moment, awareness of judgment/labeling, see self as related to thoughts/emotions/perceptions- not defined by them.

-Judge- e.g., "I'm crazy." "This thought/perception is 'true'."
-Label- this experience is good/bad, right/wrong, true/untrue.
-Expect- "…will happen- I have to react." "Things always go bad."
-Assume- the thought/perception is "true" and stable
-Restrict- only notice expected/negative thoughts/perceptions/stimuli
-Time Travel- to future/past- predictions or selective memories

|

\/

Emotional Reaction (Distress) Possibilities

<POSSIBLE MINDFULNESS INTERVENTION>

e.g., observe, notice, wait to pass, watch curiously/neutrally, be present in the "now" moment, awareness of judgment/labeling, see self as related to thoughts/emotions/perceptions- not defined by them.

-Panic, fear, anxiety, frustration, anger, confusion, sadness, despair, anxiety, paranoia, etc.

|

\/

Secondary Reaction Possibilities

<POSSIBLE MINDFULNESS INTERVENTION>

e.g., observe, notice, wait to pass, watch curiously/neutrally, be present in the "now" moment, awareness of judgment/labeling, see self as related to thoughts/emotions/perceptions- not defined by them.

Confront	Ruminate	Avoidance	Behavior Change
-hostile	-lost	-wish to "go away"	-speak out loud
-make "go away"	-absorbed	-substance use	-respond as requested
		-self-harm	-self-harm
			-substance use
			-aggression
			-isolation

|

\/

Secondary Distress Possibilities

<POSSIBLE MINDFULNESS INTERVENTION>

e.g., observe, notice, wait to pass, watch curiously/neutrally, be present in the "now" moment, awareness of judgment/labeling, see self as related to thoughts/emotions/perceptions- not defined by them.

-Primary distress plus possible shame, helplessness, hopelessness, etc.

|

V

OUTCOMES (if <u>*no*</u> intervention with mindfulness)

1. Perpetuated and/or amplified initial symptom(s)
2. Accumulated distress (e.g., re: anhedonia, positive symptom)
3. Decreased overall quality of life (e.g., dysphoria)

Appendix B

Diagnostic Screening Questionnaire

1. ***Did you ever or do you now have any ideas about things that you didn't tell anyone because you are afraid they might not understand?*** *For example, that someone is talking about you, or that something different is happening to your body. If YES: Will you please tell me more about that? How often does this currently happen? If you are currently receiving psychiatric treatment, how often did it used to happen? For how long at a time?*

2. ***Sometimes people hear voices or see things, or smell or feel sensations that it doesn't seem like other people are experiencing or noticing.*** *For example, hearing someone call your name when no one is around, hearing music when other people could not hear it, or seeing shadows or figures in the distance that others did not see. Has this ever happened to you? If YES: Will you please tell me more about that? How often does this currently happen? If you are currently receiving psychiatric treatment, how often did it used to happen? For how long at a time?*

4. ***Did you ever or do you now notice that these things you saw, heard, smelled, or felt happen only at a certain time or if you are doing a certain thing?*** *For example, when drinking alcohol, or when you are depressed? If YES: Tell me more about that please?*

5. ***When any of these things I've asked about happened, did you feel like you had control over them?*** *Did it feel like you could you stop them if you wanted to? Could you? Please tell me more about that?*

6. ***Did you ever feel numb, or without feeling?*** *For example did anyone ever tell you it seems like you aren't listening or that you don't care, or did you ever feel cut off from other people as though you were completely different than other people? If YES: Tell me more about that please? How often does this currently happen? If you are currently receiving psychiatric treatment, how often did it used to happen? For how long at a time?*

7. ***Have you ever felt unable to move parts or all of your body, or had tics or movements it felt like you couldn't stop?*** *If YES: Tell me more about that please? How often does this currently happen? If you are currently receiving psychiatric treatment, how often did it used to happen? For how long at a time?*

8. ***Have you ever noticed about yourself or has anyone ever told you that they can't understand what you are saying or that you are being "inappropriate"?*** *If YES: Tell me more about that please? How often does this currently happen? If you are currently receiving psychiatric treatment, how often did it used to happen? For how long at a time?*

9. ***Did any of these things I've asked you about ever interfere with your life?*** *For example, at work or school, with friends or family, or in taking care of yourself? If YES: Tell me more about that please? How often does this currently happen? If you are currently receiving psychiatric treatment, how often did it used to happen? For how long at a time?*

10. ***As far as you know, have you ever been diagnosed with a physical problem or brain/neurological problem****? If YES: Tell me more about that please?*

Appendix C

Demographic Questionnaire

"Please indicate your responses to the following questions by marking the answer that best describes you."

1. What is your gender?
    1. female
    2. male
    3. transgendered

2. What is your age?
    1. (please specify_____)

3. How many years of schooling have you had? _____

4. How often do you use mood-altering substances such as alcohol, marijuana, or cocaine?
    1. 0 times per week
    2. 1-2 times per week
    3. 3-5 times per week
    4. 5 or more times per week

5. What types of psychotropic medication do you take right now (e.g., chlorpromazine)? What are the dosages?
    1. (please specify all:_____)

6. As far as you know, for how long have you experienced schizophrenia?_____

7. Are you currently experiencing an acute stage of schizophrenia?_____

8. Are you currently participating in any mental health treatment services (individual or group)?
    1. Yes- please list:
    _____
    _____
    _____
    2. No

9. How would you rate the quality of your social support right now?
    1. bad
    2. moderately bad
    3. moderate
    4. moderately good
    5. good

Appendix D

Subjective Experience of Negative Symptoms Scale (SENS)

(Anhedonia-Asociality subscale)

(Rating card(s) handed to participant):

Very Little/ Very Few	Little/Few	Average	A Lot/Many	Very Much/ A Great Many
1	2	3	4	5

OR (for follow up question regarding distress):

Rarely	Not Often	Average	Often	Very Often
1	2	3	4	5

(5 item) ANHEDONIA SUBSCALE Item Summary: (full items below)

17 (decreased recreational interest and activities), 19 (inability to feel intimacy and closeness), 20 (few relationships with friends and peers), 21 (asociality), 22 (anhedonia).

Follow up questions asked for all:

-Does it bother you? Does it distress you? (if yes, go to b)…) (if no, score = 0)

b) How much does it bother you? How much do you suffer from it?

---

17. a) A person may have many hobbies or interests. In his spare time he will engage in sports or practice a hobby, for instance, needlework, handiwork, or reading. A person may also have few interests or hobbies. How has this been lately as far as you're concerned? How many hobbies or interests do you have?

19. a) We may sometimes have a close relationship with a good friend, male or female. We talk about private matters with him or her. Thing we would not talk about with anyone else. Sometimes we show him or her our affection. How has this been lately as far as you're concerned? How often do you have this kind of relationship with someone?

20. a) It may be difficult to make friends. How has this been lately as far as you're concerned? How often do you succeed in making friends?

21. a) Sometimes we feel little need for contact with other people and prefer to be alone. At other times we feel a great need for contact with other people and seek their company. How has this been lately as far as you're concerned? How much need do you usually feel for contact with other people?

22. a) There are things in life you can enjoy, for instance food or a TV program or a nice evening. Sometimes these things give us great pleasure; at other times little. How has this been lately as far as you're concerned? How much do you usually enjoy nice or beautiful things?

Appendix E

Positive Symptom Experience & Related Distress Questionnaire (PSEARD)

START

1. In the *past week*, on average, how often have you <u>heard voices/sounds</u> that other people do not seem to hear*?*_____

"1 = not at all
2 = less than once a week
3 = about once a week
4 = several times a week
5 = daily
6 = more than once a day
7 = constantly, all the time"

……(IF "not at all," GO TO #4)

2. In the *past week,* on average, how <u>*distressed*</u> (worried, troubled, upset, bothered) are you when you hear these voices/sounds, on a scale of 0-100?_____

"0 means not distressed at all, and 100 is the most distressed you've ever been."

3. In the *past week*, on average, to what degree did you believe that these things were <u>*real or true*</u>, on a scale of 0-100? _____

"0 means you are certain these things are NOT real or true, and 100 means you are absolutely certain that these things are real or true."

4. In the *past week*, on average, how often have you <u>visually seen things</u> that other people do not seem to see*?*_____

"1 = not at all
2 = less than once a week
3 = about once a week
4 = several times a week
5 = daily
6 = more than once a day
7 = constantly, all the time"

……(IF "not at all," GO TO #7)

5. In the *past week,* on average, how <u>*distressed*</u> (worried, troubled, upset, bothered) are you when you see these things, on a scale of 0-100?_____

"0 means not distressed at all, and 100 is the most distressed you've ever been."

6. In the *past week*, on average, to what degree did you believe that these things you saw were *real or true*, on a scale of 0-100? _____

"0 means you are certain these things are NOT real or true, and 100 means you are absolutely certain that these things are real or true."

7. In the *past week*, on average, how often have you experienced touch, taste, or smell/odor that other people do not seem to experience*?*_____

"1 = not at all
2 = less than once a week
3 = about once a week
4 = several times a week
5 = daily
6 = more than once a day
7 = constantly, all the time"

……(IF "not at all," GO TO #10)

8. In the *past week,* on average, how *distressed* (worried, troubled, upset, bothered) are you when you experience this, on a scale of 0-100? [ask for each experience]_____

"0 means not distressed at all, and 100 is the most distressed you've ever been."

9. In the *past week*, on average, to what degree did you believe that these things were *real or true*, on a scale of 0-100? _____

"0 means you are certain these things are NOT real or true, and 100 means you are absolutely certain that these things are real or true."

10. In the *past week*, on average, how often did you think about certain things that no one else seems to believe? [query for examples to ensure that the participant is referring to a delusion and not another type of belief] _____

"1 = not at all
2 = less than once a week
3 = about once a week
4 = several times a week
5 = daily
6 = more than once a day
7 = constantly, all the time"

(IF "not at all," STOP HERE)

11. In the *past week*, on average, how *distressed* (worried, troubled, upset, bothered) are you when you think about these things, on a scale of 0-100? _____

"0 means not distressed at all, and 100 is the most distressed you've ever been."

12. In the past week, on average, to what degree do you believe that these things are *real or true*, on a scale of 0-100? _____

"0 means you are certain these things are NOT real or true, and 100 means you are absolutely certain that these things are real or true."

END

Appendix F

Trainer Mindfulness Rating Form

Participant Code #_____

"Rate on a scale of 0-4, with 0 being "not at all", and 4 being "very much" Please enter your rating in the space before each item. Please enter "NA" if unable to determine a 0-4 rating. See examples of rating descriptions below:

0= Appears to be distracted, not paying attention at all, not looking at the mindfulness trainer at all, not responding or participating, no verbal or non-verbal language to indicate participation.
1= Offers minimal feedback, participates very little, seems distracted and unfocused for the vast majority for the vast majority of the time.
2= About half the time is paying attention and participating, and reflecting back learned material or practicing the skill. Appears to be responding verbally and non-verbally about half the time (either intermittently or for continuously half the time). Participates and responds but is not fully engaged in the training process.
3= Very interested and participatory, as evidenced by non-verbal and verbal feedback for the majority of the session. Asks questions, participates, reflects learned material. Participates and reflects back material for the majority of the session, but is distracted or unfocused or confused for a minority of the time.
4= Is engrossed and participatory for the majority of the session. Responds and spontaneously offers feedback and obvious reflection of learning for the overwhelming majority of the session. May take on a leadership role and expound upon concept to mindfulness trainer.

NA= Unable to determine if participant is attending or learning, due to non-responsiveness or non-spontaneity. May be learning but may not be- too difficult to ascertain.

Not at all	A little	Moderately	Quite a bit	Very much
0	1	2	3	4

__1. How well does the participant appear to understand the practice of mindfulness?

__2. How well does the participant appear to understand this week's skill?

__3. How committed does the participant appear to be to the mindfulness training this week?

__4. Overall, how well is the participant practicing mindfulness this week?

5. Please note here any barriers you might notice in the practice of mindfulness for the participant.

_____
_____
_____

6. Other comments:

Appendix G

Life Events Update Form

"Please answer the following questions as accurately as possible:"

In the PAST WEEK…. (as compared to last week)

1. Has your medication type changed?_____ If yes, to what?_____

2. Has your medication dosage amount changed?_____If yes, from_____(previous) to_____(current) amount.

3. Has your social support changed?_____If yes, how?_____
_____

4. Have you been hospitalized or had any emergency situations?_____If yes, please describe:_____
_____

5. Have your symptoms changed?_____If yes, please describe how:_____
_____

6. Has your living environment changed?_____If yes, please describe how:_____

7. Has your work environment changed?_____If yes, please describe how:_____

8. Have any life events (positive, negative, neutral, or both) occurred?_____If yes, please describe:_____

9.Has anything else changed?_____If yes, please describe:_____

Appendix H

General Qualitative Measure

Please let us know here of any thoughts or feelings you may have at this time, related to what you just experienced.

_____
_____
_____
_____
_____
_____
_____

What was helpful about today's session? What was less helpful? What could be improved?

_____
_____
_____
_____
_____
_____
_____

How able were you to focus and attend to today's session? How well did you understand the directions and content?

_____
_____
_____
_____
_____
_____
_____

On a scale of 1-10, 1 being the lowest, and 10 being the highest, how much do you expect this training to help you?_____.

Please explain?:_____
_____

Appendix I

Exit Interview Questionnaire

(Read to participant, give participant a copy of the answer scale, and write responses below): "Please complete the following questions as best you can. Your answers will be anonymous. Your honesty and openness are appreciated."

Please rate the following on a scale of 0-4:

Not at all	A little	Moderately	Quite a bit	Very much
0	1	2	3	4

1. How valuable did you find Mindfulness Training to be for you? _____
2. How valuable do you think the Mindfulness Training might be to others? _____
3. How valuable did you find the trainer's feedback and support to be? _____
4. How valuable did you find sharing your experience with the trainer to be? _____
5. How often are you practicing Mindfulness skills right now? _____
6. How understandable and clear do you feel the Mindfulness skills are? _____

==========

Do you feel that Mindfulness training has helped you in any area of your life?
IF YES: -Which areas? Which skills for that area? How has it helped?

Do you use Mindfulness skills when symptoms arise?
IF YES: -Which skills, and what is the result?

Do you use Mindfulness skills to improve your quality of life?
IF YES: -Which skills, and what is the result?

Do Mindfulness skills affect how much you experience pleasure in your life?
IF YES: -Which skills, and what is the result?

Are there any Mindfulness skills or things you learned that you think help you more or less?
-What are those, and why?
-What seemed less helpful?

In regards to the training itself, what might be improved?

Please offer other comments or suggestions:

Appendix J

Training Manual

Training Manual

Mindfulness Training for Individuals with Schizophrenia

J. Leah Morris Miller, Author/Editor

Mindfulness Training Skills Sheet

Introduction

Ask after each main point:
"a) challenges and/or obstacles you foresee,
b) anything you do well now,
c) ways you see the step or skill could be helpful in your life,
d) anything else/other come to mind?"

****

General Introduction to Mindfulness

First, explain ground rules including confidentiality and commitment/attendance. Explain the format/structure of the sessions (in order if possible: measures, homework review, didactics/skill, discussion, homework assignment suggestion, measures, mindfulness practice). Always ask for feedback throughout. Throughout training, as you go through each skill, wonder aloud with the participant how this may specifically apply to their experience as a person with schizophrenia.

End each session with a 5-8 minute mindfulness activity- the mindfulness activity can be the one suggested on the skills sheet or one that is more tailored to what occurred in the session that day. With the mindfulness practice and anything else, remind the participant that they can always stop when they wish to, at any time for any reason, without any explanation to anyone. Also, with mindfulness practice, do not leave more than 30 seconds silent at one time, gently guiding the participant through the exercise. Homework should idiosyncratically apply the activity to the participant's daily life.

Each session, make a copy of the skill sheet (with the skill steps only), for the individual to go through with you. Provide a pen, and scratch paper.

A. Overall: explain focus and general idea of mindfulness. Differentiate from relaxation, but explain that it may result in feeling relaxed. Explain in contrast to mindlessness- acting in habit, autopilot. For example, touch on topics covered in future sessions. Talk about how *practicing* is necessary, and patience with one's self to learn a new skill; it takes a long time and a lot of practice. Briefly touch on the below points, and let the individual know that training will thoroughly cover these later, but you wonder (ask)**, does anything stand out / seem like it might be especially helpful, or has been a challenge in the past**? Then, spend time discussing how and why the skill or skill area might be helpful, especially for the experiences of schizophrenia. If the individual is not pulled to one mindfulness topic or another specifically, be ready with examples that most people experience, tactfully and gently wonder about them with the individual (e.g., struggle with perceptions, difficulty in social situations, feeling invalidated…) and work to decide together how mindfulness might be helpful.

Primary Goal = change the way one relates to one's experiences- the relationship.

Overall:

a) -Concentration and gentle focus
b) -Awareness, noticing, purposeful flexible attention
c) -Being present in the moment
d) -Stepping back, observing, noticing
V. judging, expecting, assuming, autopilot
-therefore allow space for a conscious choice / reaction
V. thinking things must be a certain way ("shoulds")
V. comparing / wanting a different experience
-notice attachment / fusing
-you are not your emotions/thoughts
-mindfulness means you notice that just because you are feeling sad does not mean you are a sad person, for example

i) -Observe
- Note It
- Step Back
- Get Unstuck

ii) –Notice
-"Scientist, v. Judge"
-Curiosity/interest v. Label/assume/expect/decide too soon
-Allowing things to be as they are, rather than as they "should" be
-this is not giving up power- it is gaining power- you allow yourself a choice as to how to respond and you define what type of relationship you have with the experience

iii) – Compassionate gentleness, light attention touch
-"butterfly touch" of attention, light, flexible
-value your ability to "be" rather than what you have "done"

B. Discuss some of the usual challenges and/or obstacles with mindfulness practice, and reassure with normalization, validation, and offer some solutions now, and let the individual know you'll brainstorm more as you move through the training.

a) -I'm not any good at it, won't be any good at it.
b)-Training feels like one more thing, one more responsibility.
c) -Finding time to practice.
d) -Wandering / busy mind.
e) -Fear of dealing with one's mind.
f) - Other people's reactions.
g) -Feel vulnerable
h) -Hard to learn something new
i) -Hard to learn something intangible
g) +…. Ask, "any others come to mind?"

****

In-Training Mindfulness Practice:
(After: discuss how the exercise went, experiences, challenges and/or obstacles, surprises. Always ask for feedback, answer questions.)

Basic Mindfulness Breathing Exercise:

-***Important Note****: Guide gently throughout, to avoid prolonged silences. Encourage allowing the attention to gently move about, rather than focusing and becoming engulfed in or fused to one thought or perception (do this with all mindfulness exercises in this manual).*

"This is an awareness practice, not an exercise in breathing; there is no need to adjust the breathing in any way. We simply attend to the breath, getting to know it as it is: shallow or deep, long or short, slow or fast, smooth or rough, coarse or refined, constricted or loose. When we get distracted by thoughts or emotions, we simply return to the physical sensations of the breath. Sit in a comfortable but alert posture. Gently close your eyes. Take a couple of deep breaths, and, as you exhale, settle into your body, relaxing any obvious tension or holding. Then, breathing normally, bring your awareness to your body, sensing for a short while how the body presents itself to you. There is no particular way to be; just notice how you are at this moment. Then, from within the body, as part of the body, become aware of your breathing, however it happens to appear. There is no right or wrong way to breathe while doing mindfulness practice; the key is to simply notice how it actually is right now. Let the breath breathe itself, allowing it to be received in awareness. Notice where in your body you feel the breath most clearly. This may be the abdomen rising and falling, the chest expanding and contracting, or the tactile sensations of the air passing through the nostrils or over the upper lip. Wherever the breath tends to appear most clearly, allow that area to be the home, the center of your attention. Keep your attention connected with the inhalations and exhalations, sensing the physical sensations that characterize them. Let go of the surface concerns of the mind. Whenever the mind wanders away, gently come back to the breath. There is no need to judge the wandering mind; when you notice that the mind has wandered, simply return to the breath without evaluation. To help maintain contact between awareness and the breath, you may use a label or mental note. Softly, like a whisper in the mind, label the in-breath and out-breath, encouraging the awareness to stay present with the breath. You can label the inhalations and exhalations as "in" and "out," or perhaps use "rising" and "falling" for the movement of the abdomen or the chest. Don't worry about finding the right word, just use something that will help you stay connected. There is no need to force the attention on the breath; to strengthen your ability to become mindful and present, use the gentle power of repeatedly, non-judgmentally returning and resting with the breath."

Mindfulness Training Skills Sheet

One Thing At A Time

Ask after each main point:
"a) challenges and/or obstacles you foresee,
b) anything you do well now,
c) ways you see the step or skill could be helpful in your life,
d) anything else/other come to mind?"

As with all skills, wonder aloud with the participant how this may specifically apply to their experience as a person with schizophrenia.
****

Skill Steps: One Thing At A Time

a) Practice doing or noticing just one thing at a time, gently staying with one whole experience.

b) Gently and compassionately bring the attention back to the one thing when the mind wanders, like reeling in a "kite."

c) Use the breath as an "anchor" and a "pause button." As an anchor, return to it to bring you back to the present moment, to yourself. As a pause button, take the time to slow down for a moment and just be.

Discussion Points:
(targeted to mitigating anhedonia, increasing quality of life)

-Tasks that may have been overwhelming may seem easier because one at a time are done.
-Tasks and activities may be more enjoyable and fulfilling because full attention is on them.
-Self-confidence may improve due to feeling more competent, doing things well.
-May notice and enjoy small things that get lost if one is not in the moment- e.g. warmth and sparkle of soap suds.
-Reduces stimuli that the brain must process at once, therefore reducing anxiety, stress.

****

In-Training Mindfulness Practice:
(After: discuss how the exercise went, experiences, challenges and/or obstacles, surprises. Always ask for feedback, answer questions.)

Breathing Mindfully & Noticing Senses:

Repeat mindful breathing practice from first session, and then add a request to gently shift senses to noticing one thing at a time in the room. For example, "now gently shift your focus to noticing any sounds in the room, just allow your attention to gently stay with the sounds only, and when your attention shifts elsewhere as it will do, gently return the focus to noticing sounds." Repeat for vision and touch sense. Finish with breathing and centering in the body.

Mindfulness Training Skills Sheet

Observe

Ask after each main point:
"a) challenges and/or obstacles you foresee,
b) anything you do well now,
c) ways you see the step or skill could be helpful in your life,
d) anything else/other come to mind?"

As with all skills, wonder aloud with the participant how this may specifically apply to their experience as a person with schizophrenia.
****

Skill Steps: Observe

a) Relax the mind and try to observe, view and allow an experience to just "be," without reacting to it immediately. Look *at* it, rather than being *in* it.

Tip: To help, use the breath, relax the muscles back and down, your mind can follow this role modeling from your muscles.
Tip: Think about if your hand were right in front of your face- could you see out past it to figure out what to do or what the whole picture is? Now move the hand away from the face, and what do you notice? Can you see more? Better? That's what happens when we focus too closely on one thing, and then step back.

b) Step Back, Get Unstuck – get out of the "waves" and onto the "beach."

For example, if you are sad, you can allow the sadness to just be, without clinging to it or focusing on it so that it is all you see or all you experience. You are observing your experience, and it can be part, not all, of your experience.
Tip: it might help to actually physically step back, to let your mind know this is what you're doing.

c) Try not notice when you feel that one single thing is all you are noticing- this is the reminder to again step back- get on the "beach" and out of the "waves."

Tip: You can usually tell when you are clinging to something and it is taking over, because your muscles will be tense and you may be breathing shallowly. It might help to figure out what your clues are: for example, do you tend to look down, or clench the jaw?

d) Know that the mind is used to "putting the hand in front of the face" (fusing too closely with one thing). Allow time and practice, a lot of it!

Tip: If you feel frustrated, take a break, or try breathing, looking around, or release muscles where they tense the most for you…for some this is in the jaw or between the eyebrows, or the shoulders.

Discussion Points:
(targeted to mitigating distress associated with hallucinations/delusions)

-Introduce a mindfulness / not mindfulness worksheet with columns, or diagram out the differences between responding mindfully v. habitually. Elicit an example from the individual if they are willing (if not, use a generic example), so that it is personalized to their experience, and work through the worksheet with them.
-Mindfulness can help by allowing one to step back and observe what is occurring without reacting to it. Notice thoughts and emotions associated with perceptions, without immediately reacting. The goal is not to dispute your perception, but rather to change your relationship to it.
-Mindfulness us to hold things at arm's length, so that we can sort perceptions and notice them without immediately reacting or assuming. Therefore, we can make conscious choices.
-Can restore sense of power and choice- regardless of the stimuli, you still get a choice as to how you want to relate to it.
-My perceptions do not control me- I can observe them and let them be, or pass.
-Suppressing/avoiding or clinging might end up amplifying perceptions. Peacefully allowing them to come and go takes away their power.
-My relationship and reaction to the perception can create more stress than the perception itself.
-Mindfulness can offer a centered feeling so that stimuli are not as overwhelming.
-Can decrease shame, embarrassment, and other secondary emotions and distress.

Note: Ensure to validate the difficulty of this practice, especially for a distressing perception, and to stress that practice and time (lots of it) are necessary, but that if the individual can do this even one time they might notice that it may be worth it to practice until it is more of a habit.

****

In-Training Mindfulness Practice:
(After: discuss how the exercise went, experiences, challenges and/or obstacles, surprises. Always ask for feedback, answer questions.)

<u>Breathing + Observing Physical Sensations/Body Scan:</u>
Begin with mindful breathing from session 1, and then ask the participant to slowly become aware of what it feels like to sit in the chair, noticing feet on the ground, and then ask them to become aware of any other physical sensations and simply observe them. Guide the participant through possible physical sensations, then allow 30 seconds at a time, with guided verbalization between, for the participant to scan the physical self and gently notice physical sensations, without clinging or attachment, and then move on to the next part of the scan.

You might also try the "hand in the face" exercise to demonstrate how fusing to one perception makes it very difficult to choose how to react to it or see the whole picture.

Mindfulness Training Skills Sheet

Describe

Ask after each main point:
"a) challenges and/or obstacles you foresee,
b) anything you do well now,
c) ways you see the step or skill could be helpful in your life,
d) anything else/other come to mind?"

As with all skills, wonder aloud with the participant how this may specifically apply to their experience as a person with schizophrenia.
****

Skill Steps: Describe

a) Give neutral labels to your experience. Describe the absolute basics.
For example, "I am having the thought that_____."
-Tip: to better explain this, consider that you are walking down a path and see a huge boulder that blocks the path- does it help you to say that it is a "bad" situation and that the boulder "shouldn't" be there? How might you change your relationship to this boulder? How might you re-notice it and re-label it? (this might be called, working with "As It Is")

b) Be a "Curious Scientist"- try to be curious about your experience and allow it just be, without judgment, expectation, or assumption.
-Tip: try using the sentence prefix, "Interesting, I notice….." to cultivate a curious scientist approach. Try to be gently curious about your experience. If you were a scientist being paid to scientifically assess this perception you are having, how might your relationship to it be different?

c) Notice and neutralize the "shoulds."
-Tip: consider how the "shoulds" might be upsetting you and keeping you from having and making choices for yourself.
-Tip: it helps to honor for yourself that many things really "should" have been different and should be now. Then, return to neutralizing them, so that you can have a choice in working what you have to work with (working with "As It Is").

Discussion Points:
(targeted to mitigating distress associated with hallucinations/delusions)

-Introduce a cognitive processing habits handout (e.g., jumping to conclusions, mental filter, black-or-white thinking), to help the individual to identify typical habitual categorizations the brain makes- normalize it by speaking of it this way. Talk about how knowing what you're looking for can help to find it- it is a compass for a partial map of the mind.
-Option: use a container that is labeled something, e.g. "cookies," but place something different inside (e.g., nothing, pencils). Use this prop as a way to talk about how labels can change our expectations, and openness can allow us to see more.
-Mindfulness can help by allowing one to step back and describe what is occurring without reacting to it. Notice thoughts and emotions associated with perception without reacting. The goal is not to dispute your perception, but rather to change your relationship to it.
-Mindfulness allows a distance, a place from which we can sort perceptions and notice them without immediately reacting or assuming. The basic lessons here are:
-I am not my perception; it is an experience I am having: de-identify.
-My perceptions do not control me, including those I have of myself.
-My relationship to the perception can create more stress than the perception itself.
-Mindfulness can offer a centered feeling so that stimuli are not as overwhelming.
-Validate for one's self that many things should not have/now be, but use mindfulness to stay present and able to make choices to help one's self.

Note: Ensure to validate the difficulty of this practice, especially for a distressing perception, and to stress that practice and time (lots of it) are necessary, but that if the individual can do this even one time they might notice that it may be worth it to practice until it is habit.

****

In-Training Mindfulness Practice:

(After: discuss how the exercise went, experiences, challenges and/or obstacles, surprises. Always ask for feedback, answer questions.)

Breathing Exercise + Labeling:

Begin with mindful breathing from session 1, and then ask the participant to slowly become aware of thoughts that may arise, and to observe them curiously. Then, ask the participant to label it as "thought" with either a label-maker, putting it in a category box, or letting it pass by on a cloud or beltway, and then curiously wait for the next one. Then, offer this same guidance for images, to label them as "image" and gently let them pass in the way they can best visualize. Finally, do this for feelings, labeling them "feeling." (approximately 2-3 minutes per category: thought/image/feeling). End with breathing, and re-centering in the body (e.g., noticing feet on the floor, hands on the chair).

or…..

Mindfully Describing a Typical Object:

Bring in a rock, a dandelion, and if you have it a block toy that can be moved in different odd shapes (it looks immovable and one would assume it is but it is surprisingly flexible). One at a time, give one item to the participant, and ask them to describe it first with neutral mindful labels, and then with judgments, valences (positive, negative, etc.) and assumptions that people typically make. Offer a lot of positive reinforcement at descriptions in appropriate categories, and gently add other descriptions if necessary, or help to readjust perspective on a label (for e.g., if the participant says the dandelion is a "weed" as their mindful label, you might say "I wonder if it has always been a weed-does "weed" have a negative connotation to it?"). After the exercise, ask about what it was like to notice the differences, and how it felt to describe something one way and then the other.

Mindfulness Training Skills Sheet

Mindfully Enjoying

Ask after each main point:
"a) challenges and/or obstacles you foresee,
b) anything you do well now,
c) ways you see the step or skill could be helpful in your life,
d) anything else/other come to mind?"

As with all skills, wonder aloud with the participant how this may specifically apply to their experience as a person with schizophrenia.

****

Skill Steps: Mindfully Enjoying

a) Look up and around- gently pull your mind back into the present moment and take a moment ("pause button") to notice your environment.

b) Slow down and "zoom in"- take a mindful breath to help slow down your motions and breathing, and then bring your attention to the things around you that may be going unnoticed or unappreciated. (For example: your legs working to carry you along as you walk, or a small bird in the trees.)

c) "Zoom out" - allow your attention to gently move from one thing, and then "zoom out" to a larger and more whole picture, to perhaps even notice your aliveness and valuable presence among all of the surroundings.

d) As your attention drifts during this process, gently bring it back to the moment. Notice any thoughts about when this peaceful or good moment may end, and just allow them to pass like "clouds" while you gently re-focus and bring your mind back into the present moment (like reeling in a "kite").

e) Practice this each day for 5 minutes a day (or more if you wish).

f) Choose a life activity that helps you to stay in the moment in these ways, and add this practice to your life. Mark here what you choose:_____.

Discussion Points:
(targeted to mitigating anhedonia/some negative symptoms, increasing quality of life)

-Can notice and appreciate simple beauty in the world / within us.
-What is here right now can be enough.
-Allows for moments of peace and still.
-Allows you to accept yourself and the situation as they are- even if you want to change later.
-Can open up appreciation for something or activity to participate in or enjoy.

****

In-Training Mindfulness Practice:
(After: discuss how the exercise went, experiences, challenges and/or obstacles, surprises). Always ask for feedback, answer questions.)

<u>In-Vivo Appreciation Walk/Sit</u>

Take a brief slow walk or sit outside with the individual if possible, stopping somewhere near the site that they choose, to apply the skills for mindfully enjoying. Provide a few examples of what you notice as you zoom in and out, and ask if the participant notices anything. Go back and forth informing one another, giving the individual the most talking space. Utilize nature, details and bigger pictures, to help in this process. Go through the skill sheet, and demonstrate and pull from the direct experience for examples from this in vivo situation.

Mindfulness Training Skills Sheet

Being Mindful Socially

Ask after each main point:
"a) challenges and/or obstacles you foresee,
b) anything you do well now,
c) ways you see the step or skill could be helpful in your life,
d) anything else/other come to mind?"

As with all skills, wonder aloud with the participant how this may specifically apply to their experience as a person with schizophrenia.

****

Skill Steps: Being Mindful Socially

a) Before a social encounter, if possible, take a moment to take a natural mindful breath, and say something soothing and mindful to yourself, such as "I am centered, I am calm." Do this slowly and gently, at least 3 times.

b) Enter a conversation with the compassionate stance that it doesn't have to go perfectly, and that your goal is simply to try to gently stay present with the person as much as you can.

c) Allow yourself to become genuinely curiously interested in the other person and what they might have to say. Ask questions or offer statements as the result of being in the moment with the conversation (rather than trying to think of very specific things to say while the other person is talking).

d) As your attention drifts during this process, as it always will, just notice it when you can and gently bring it back to the moment. Notice any distracting thoughts and just allow them to pass while you gently re-focus and bring your mind back into the present moment.

e) When you are not in a social situation, try to identify any thoughts that can usually come up in the moment and make socializing difficult- such as, for example, worries about how you are doing socially. Try to reassure yourself with cheerleading and encouraging statements.

f) Start small, trying to be a little more mindful during interpersonal interactions, and try to work toward more frequent mindfulness during social encounters.

g) Maintain compassion for yourself, and encourage yourself by remembering that you don't have to rush the conversation along or offer something very specific like an

exciting bit of news. Just try to allow the conversation to naturally flow and know that all conversations feel awkward at times- it's normal and OK.

Discussion Points:
(targeted to mitigating anhedonia/some negative symptoms, increasing quality of life)

-Can better foster new relationships, if wanted, and therefore possible activities.
-Can more easily interact at work or school, and easier focus on that task.
-Can decrease drain from social interaction that can lead to anhedonia.
-Can improve quality of existing relationships.
-Better social interaction can lead to a better support system, people to listen.
-Can increase confidence in general, feeling better about social interactions and social self, not having to worry about it as much.
-May be more likely to do things you want to do, as social interaction could be an obstacle/block toward doing certain things.

****

In-Training Mindfulness Practice:
(After: discuss how the exercise went, experiences, challenges and/or obstacles, surprises). Always ask for feedback, answer questions.)

<u>Social Interaction With Trainer, 2 Ways:</u>

Ask the participant if they would be OK with a quick social interaction with you, to notice the difference between mindful and mindless social interaction- reminding them they can say no for any reason at any time with no explanation necessary. (If the answer is no, then do a basic breathing mindfulness exercise and then ask the client to imagine themselves socially interacting mindfully). Ask the participant to first try to imagine a recent slightly difficult experience they had socially, and to begin talking with you from that state of mind. Respond as you normally would. Then, briefly review the social mindfulness tenets, and then ask the participant to try interacting with you from a mindful place. Each interaction should be only 2 minutes long or so. After, talk with the participant about how the interactions felt, what the challenges and/or obstacles were, and what they did well, and give them feedback on what they did well or how they came across as mindful if they did. End the session with a basic short breathing mindfulness to help calm any anxiety that may have arisen as part of the exercise.

Mindfulness Training Skills Sheet

Review

Ask after each main point:
"a) challenges and/or obstacles you foresee,
b) anything you do well now,
c) ways you see the step or skill could be helpful in your life,
d) anything else/other come to mind?"

As with all skills, wonder aloud with the participant how this may specifically apply to their experience as a person with schizophrenia.
****

(Begin with the below description, pausing for feedback and question, and then go through the past skills sheets, pausing for feedback and questions.)
(This skill usually takes two sessions.)
(Give participant copies of all skills and review sheets, without directions to the mindfulness trainer on them, and also provide contact information for the project).

Skill Steps: Review

What is Mindfulness?

- Mindfulness is **mentally stepping back and slowing down**- it is a more gentle mental approach to thoughts, feelings, and experiences.

- Mindfulness is **observing and noticing** a knee-jerk or habitual learned reaction or thought process, so that you can take a moment to either choose a different reaction, or choose a break to re-center. The goal is to slowly change your relationship to your experience, in part to eventually give you longer and more calm spaces from which to make decisions.

- Mindfulness is bringing one's mind into the **current moment**.
    - -Then, we can work with what is happening now, rather than what has happened in the past and what fear tries to fool us into thinking might happen in the future.
    - -Then, the current moment might hold and offer some beauty, goodness, or interest that we hadn't noticed because we were not in the moment.

- Mindfulness is a general approach of **compassion and gentleness**- with yourself and with experiences. It is giving yourself time and space to learn, experience things, and do what you can with hope for yourself and your life.

- Mindfulness is NOT: automatic expectations, assumptions, and fears. Our habits and learned fears can be useful at times, but mindfulness allows us question as to whether they are still useful in our current moment, and to gently wonder if we wish to make new conclusions. Mindfulness is **curiosity**, instead of assumption.

- Mindfulness is working with **what "is" in the current moment**, rather than what "should" be. It is true that many things should be different, and it is important to have compassion for your feelings about these things for you. However, a mindful approach means that with day to day living, we work with what is, with hope toward creating what we would like in our lives.

Ideas of ***How*** to Practice Mindfulness:

- Practice doing **one thing at a time**, at least once a day for five minutes or so. For example, just do the dishes, or just notice the sunset. When the mind wanders, gently try to notice that it has wandered, and gently (or even with humor) pull it back to the one thing you are doing in the moment.

- Shift your focus to the physical sensation of **breathing**, for at least 20 seconds or so. Notice where you physically feel the rhythm of your breathing, and allow yourself to breath naturally (optimally, your belly should move in and out more than your chest).

- Choose something and **practice being curious** about other explanations and conclusions about this thing. For example, notice a dandelion and wonder what assumptions we may have about it, and what we may now know or what is different than our assumptions.

- Consider something that "should" be different than it is or was, and **wonder** about how you might approach it differently if you worked with what is in the moment right now (while still being compassionate toward your feelings about it).

- Practice **"zooming in"** – notice a detail in the current moment, such as for example, a cool hat someone (you?) may be wearing, or a cloud formation.

- Consider the basic steps of mindfulness:
    1. **Note It, Pause Button**
    2. **Step Back, Get On The Beach**
    3. **Name It, Neutralize It**
    4. **Get Unstuck, Let the Wave Pass**

- Think of a way to **visualize** the mindfulness process, to make it easier to practice. For example, maybe it is "getting out of the water and stepping onto the beach" or "watching feelings/thoughts go by like clouds, or waves" or "stepping to the side to let it go by, instead of trying to attack it or run from it."

- Try **labeling** things at their most neutral and basic level. For example, rather than saying to yourself, "I am anxious, and I can't handle this" try "My body is having a physical reaction and it will pass through." Or, simply label a thought as a "thought" and a feeling as a "feeling."

- Try using a **mantra**, a soothing statement, to bring you to a place of mindfulness. For example, you might try gently focusing on and repeating, "This wave will pass" or "I am in my center."

- Try doing a mindfulness **worksheet**, comparing mindfulness and its usual consequences to habitual reaction and its usual consequences.

- Post **reminders** that help you remember to be mindful- maybe a note on the fridge or a post-it on the door.

- **IMPORTANT**: take baby steps. Try out mindful approaches, notice when it is not working, and gently try again now or later, as you wish. Slowly and gently add more mindfulness to your life, bit by bit. Give yourself **time and patience**. Also, remember mindfulness is one tool- if you have other tools, keep using those too.

Discussion Points:
(targeted toward improving quality of life, decreasing neg. sx, and decreasing distress related to positive symptoms)

-Apply mindfulness to your individual goals- keep these in mind, will a mindful stance and reaction be more likely to get you further toward these goals?
-Using what works v. what "should" be can make reaching goals more likely.
-Reassess goals periodically.
-Basics: mindfulness is easier if you are: physically well, not overeating, not altered with substances, sleeping, exercising.
-Think about your own strengths and challenges and/or obstacles.
-How could mindfulness be applied to these strengths and challenges?
-What are your best mindfulness exercises? What works the least well?
-What's the "go-to"?- mindfulness you can do anywhere anytime relatively easily.

****

In-Training Mindfulness Practice:
(After: discuss how the exercise went, experiences, challenges and/or obstacles, surprises. Always ask for feedback, answer questions.)

Mindfully Describing a Typical Object:

Bring in a rock, a dandelion, and if you have it a block toy that can be moved in different odd shapes (it looks immovable and one would assume it is but it is surprisingly flexible). One at a time, give one item to the participant, and ask them to describe it first with neutral mindful labels, and then with judgments, valences (positive, negative, etc.) and assumptions that people typically make. Offer a lot of positive reinforcement at descriptions in appropriate categories, and gently add other descriptions if necessary, or help to readjust perspective on a label (for e.g., if the participant says the dandelion is a "weed" as their mindful label, you might say "I wonder if it has always been a weed- does "weed" have a negative connotation to it?"). After the exercise, ask about what it was like to notice the differences, and how it felt to describe something one way and then the other.

(this exercise can also be used in the Describe Skill section)

Appendix K

Homework Sheet

Participant Code #_____

Instructions: Please complete your suggested assignment each week and fill out this sheet as completely as possible. Do the best you can, and we will go over each assignment the following week, where you will then be asked to turn it in. Thank you!

Assignment:
_____*Practice doing one thing at a time while waiting for the bus*._
_____
_____

Date(s) practiced: _____ Location(s)_____

What cue did you set up to remind yourself to practice mindfulness?_____
_____

Please briefly describe what happened, what took place:
_____
_____

In general, how did it go?
_____
_____
_____

What were your challenges with this homework?
_____
_____
_____

What were things / areas you feel you did well, with this homework?
_____
_____
_____

Any other comments?
_____
_____

Appendix L

Trainer's Perspective and Themes

Trainer's Perspective: Themes, Generally Salient

After a review of all the data, the trainer reflected on her experiences with the various participants over different sessions and across the two data-gathering settings. This account is much more subjective than those presented earlier, where the researcher was more bound by quantitative and qualitative methodological constraints and attempted to minimize possible speculation which might result in greater levels of bias. The trainer's experience with the participants during training, and analysis of field notes, elicited themes, some overlapping and some that were not illuminated by the coded category frequency analysis or specific feedback examples from participants. It should be noted that although these themes are based on notes, memos, and observations along with the trainer's impressions, trainer and perceptional bias are inherently unavoidable, and therefore these themes are subjective.

The first themes noted are those that are conceptualized as being generally salient, including, for example, possible challenges to participants' integrating and practicing mindfulness from the training. First, it was noted that overall, each participant had an apparently different and unique experience in training. However, thematic similarities in experience were noted as present across some or all participants.

One theme noted across eight of the ten participants involved the apparent current presence of anxiety and depression. The trainer noted that not only did the majority of participants struggle with some symptoms of depression and anxiety (a "related to training" qualitative theme), but that, even further, the majority of participants preferred

to apply the mindfulness skills to these experiences rather than those representing more core symptoms of schizophrenia. The trainer's understanding of this, based on participant feedback, was that at that particular time in the participants' lives, depression and anxiety symptoms were more prevalent and distressing than specific schizophrenia symptoms. The majority of participants indicated that they already had found at least some ways to understand and cope with their symptoms of schizophrenia, and that, while these symptoms were distressing, depression and anxiety represented their currently more troubling experiences.

Another theme noted by the trainer was the tendency for a participant to have felt at one time in his or her life as though he or she were either too invisible or too obvious to other people as the result of having schizophrenia symptoms (a "related to training" theme). In other words, they felt as though they were being viewed under a stigmatizing microscope, both by mental health organizations and by other people, or they felt ignored or shunned by others. Some participants reported that they saw the choice to be seen and heard as a luxury to them, not a given and unquestioned everyday experience. This theme sometimes arose at the beginning of the Social mindfulness skill section of the training, but it could also come up early in the sessions, not as the result of any particular training topic. Seven out of ten participants shared this experience with the trainer.

Another prevalent theme related to other people's reactions was the feeling that other people, including mental health professionals, often do not know how to react to a person with schizophrenia symptoms (a "related to training" theme) (e.g., "It doesn't distress me, it distresses them"). Participants had varying views on why this theme was relevant. For some it was noted that they could be eased out of a symptom much more

quickly and easily if an appropriate reaction were offered by another person. Examples of inappropriate reactions were: telling participants that what they are experiencing is not real, dismissing the person entirely, arguing about the experience, becoming agitated or angry, or reacting in an extreme fashion, especially in ways that removed their human right(s). Participants noted somewhat different preferences as to what represented appropriate reactions, but examples of reaction(s) that they commonly hoped for from an acquaintance included a combination of validating the emotion, acting casually, possibly noting the symptom in a normalized way (e.g., "you're off in left field now, man"), and distracting the participant to another topic. Participants noted that later it could be possible to see the symptom for what it was, but with a strong hallucination or delusion or one in which immediate action to avoid harm seemed required, it was often difficult or impossible to do this in the moment. Five out of ten participants spoke about their thoughts and feelings on this matter.

Another theme related to schizophrenia symptoms was the reported enjoyment, pleasure, and usefulness of some delusions and hallucinations (a "related to training" theme). Six out of ten participants stated that they took pleasure, found hope, and/or enjoyed a boost in self-confidence as the result of certain delusions and hallucinations. For example, participants noted "I'd rather be happily deluded than realistic," "You know me, I enjoy my voices," and "Seriously, I wanted to live in a fantasy world." Some delusions provided a fantasy world that buoyed the person with hope and confidence, and some hallucinations provided a sort of friend, companion, or debate partner. The participants who shared such experiences were all cognizant of wanting to or having wanted to retain these specific hallucinations or delusions. One specifically noted that he

feels mental health providers should not try to take away all delusions and hallucinations because some of them are useful, helpful, and supportive.

Six out of ten participants also reported the theme of feeling overwhelmed and rushed (a "related to training" theme). This was a subjective perception, independent of the actual number of responsibilities and activities in the participants' lives. For all of these participants at least one of the responses to this experience was to freeze and to do nothing productive at all. This reaction then often led to guilt, despondence, or a decrease in self-efficacy. Multiple explanations were offered for this phenomenon, and these seemed to vary by participant. One explanation was that characteristic racing thoughts led to a feeling of being overwhelmed. A more frequent explanation was that the schizophrenia symptoms of delusions and hallucinations led participants to have little attention or energy left to prioritize and organize day-to-day activities. Another explanation was that many of the experiences of a person with schizophrenia (e.g., "coming down" from a delusion, being hospitalized, feeling stigmatized and ostracized) could leave the person feeling shattered, vulnerable, and therefore more easily overwhelmed.

A theme that was both frequently-occurring and seemed from the trainer's experience to be very important had to do with guilt and shame about past events, especially those related to participants' child(ren) (a "related to training" theme). For seven out of ten participants, difficult and sometimes traumatic events from the past would come up in the training sessions, without any apparent stimulus or specific precursor. Guilt and shame were emotions that were the most often mentioned, especially when the participants felt that they had disappointed or hurt their child(ren) (six out of ten

participants). As noted, participants' sharing of these experiences did not appear to take place specifically due to the introduction of a skill or at any particular time in the training. For example, while one participant shared such negative social experiences as the result of the introduction of the social mindfulness skill, another shared negative social experiences during the introductory first session.

A prevalent theme shared by nine out of ten participants involved current resentment about past occurrences, experiences that were sometimes still ongoing in the present (a "related to training" theme). Eight out of the nine participants who spoke about this indicated that a family member was one source of resentment. The timing of these related events varied from childhood to adulthood, including experiences such as invalidation, abandonment, abuse, assault, neglect, removing rights, shaming, and dehumanization. The participants often also felt shame and guilt about certain behaviors (especially related to children), but they also expressed resentment, sadness, or anger about the way they themselves were treated in these situations.

Four of these nine participants who expressed resentment indicated that the mental health system was a source of resentment for them, feeling for example as though people treated them as "a pet" or in an invalidating and/or dehumanizing fashion. Four of these nine participants also indicated resentment about how they felt they had been or are treated by other people, sometimes including general categories of people such as law enforcement personnel and those of the other gender. The trainer did not note any pattern in what particular stimuli brought up these experiences in the training. This particular theme was sometimes related to a specific mindfulness skill, but it appeared mainly unrelated and came up at various times throughout training.

These same nine participants who endorsed current resentment about past occurrences also endorsed a feeling of loss and accompanying reminiscences about what could have been (a "related to training" theme). Lost opportunities included restricted human rights, diminished cognitive abilities (e.g., memory), other abilities, careers, helpful activities, a coherent sense of self, self-confidence, and more. Most salient and most often mentioned was the loss of children. For most participants this theme was related to the fact that their children were taken away or distanced themselves from the participant. This theme seemed remarkable to the trainer, not in the fact that loss occurred (as it does for many people), but in the apparent extent, depth, and cumulative nature of the loss(es) experienced by these individuals.

Another theme that was less frequently reported but still seemed salient to the trainer was that five out of the ten participants reported having memory problems (a "related to training" theme). Reported reasons for memory problems included medication side effects, past treatment procedures such as ECT, distraction by hallucinations, and other psychological disorders (for example, memory deficits associated with depression). Two participants specifically noted that retaining the mindfulness training content was difficult due to memory problems. Related to this theme was that participants reported that a block to using mindfulness was remembering to use it (a "related to training" and "reaction to training" theme). This is apparently a different kind of memory problem, seemingly involving recall or prompting rather than learning or retention; participants reported forgetting to recall and use the skills, not forgetting the skills' content. Eight out of ten participants verbalized this as a problem.

It appeared to the trainer that it was difficult for the participants to remember to use a new skill because participants would forget that a new skill was an available option and therefore fail to employ the mindfulness skill. It also appeared to the trainer that because the skills were novel, using them might have felt uncomfortable, and some participants might have avoided using the skill so as to avoid feeling uncomfortable. One participant noted that "I stayed [in mindlessness] because it's familiar." It was the trainer's experience that participants would report that the days immediately after and preceding the weekly training session were those when mindfulness was most likely to be practiced. It seemed that the session served as a reminder to use mindfulness, but that in the interim, awareness of the availability of mindfulness as a skill was forgotten or possibly suppressed.

Trainer's Perspective: Themes Regarding Beneficial Outcomes

The trainer also noted some themes that could be categorized as beneficial outcomes. First, some participants noted experiencing an improved sense of protection or safety from frightening or overwhelming thoughts and feelings (e.g., "Seems to offer some sort of protection from the fear"). In addition, some reported a developing and improving self-concept, for example, from feeling "broken" to "I'm finding out who I really am deep inside." Self-awareness was part of this theme, and this was noted by some participants ("I am becoming more aware of myself"). Also, self-compassion and self-love were salient developments for some participants. Of the six participants who reported compassion as salient, five were over the age of 35, suggesting to the trainer a possible age or experience contribution to the treatment and outcome variable of self-compassion.

Other beneficial outcome themes noted were the improvement of confidence and associated healthy boundary assertion with other people (e.g., feeling more confident in asking for needs to be met or expressing opinions), generation of hope and/or optimism, feeling more relaxed or less tense, and making better choices or having more adaptive reactions. In addition, seven out of ten participants indicated that either the frequency or quality of their relationships with other people was improving.

Appendix M

Trainer's Perspective and Themes Summary with Treatment Indication Examples

Theme	Realm*	Treatment Indication Examples
Generally Salient Themes:		
Unique and differing training experience	(Reaction)*	Flexible, tailored application of the standardized training manual.
Anxiety and depression	(Related)*	Allow temporary training focus on anxiety and depression if these symptoms are predominant; consider modifying training manual to directly address these areas (e.g., skill topic, discussion questions).
"Invisible-obvious" dilemma	(Related)*	Discuss this topic at the beginning of training; use the Observe skill to address this experience once it is in conscious awareness; consider modifying training manual to include a discussion of the possibility of mindfulness leading to feeling vulnerable.
Others not reacting helpfully to symptoms	(Related)*	Teach participant how to teach others how to react to them mindfully; provide validating, safe, and respectful environment in training; consider modifying training manual to add as a discussion question.
Enjoy and want to keep some hallucinations/delusions	(Related / Reaction)*	Trainer awareness that this theme may arise and mindfulness application and understanding may need to be clarified; consider modifying training manual to add as a discussion question.

Overwhelmed and/or rushed	(Related)*	Modify recruitment materials to add mitigation of this experience as a potential benefit of training; change time/session format of training; consider modifying training manual and adding this topic to the Observe skill as a discussion question.
Guilt and shame	(Related)*	Consider modifying training manual to add these topics as discussion questions and/or areas to which the Observe and Describe skills might be applied; ensure trainer awareness of this theme and plan for addressing it; possibly refer to a mental health professional for therapy to treat these areas.
Resentment about past	(Related)*	Ensure trainer awareness of this theme and plan for addressing it; possibly refer to a mental health professional for therapy to assist with this area.
Loss and missed opportunity	(Related)*	Ensure trainer awareness of this theme and plan for addressing it; possibly refer to a mental health professional for therapy to assist with this area.
Memory problems	(Related / Reaction)*	Provide additional take-home materials for participant; reminder cues such as magnets, objects, and quotations; modify time and/or session format of training.
Forgetting that mindfulness is an option	(Reaction)*	Provide additional take-home materials for participant; reminder cues such as magnets, objects, and quotations; follow up with out-of-session telephone call(s); modify time and/or session format of training.

Beneficial Outcome Themes:

Improved sense of protection from thoughts/feelings	(Reaction)*	Consider adding to training manual as discussion questions.
Self-awareness and self-concept improving	(Reaction)*	Consider adding to training manual as discussion questions.
Self-compassion and self-love improving	(Reaction)*	Consider adding to training manual as discussion questions.
Confidence and boundary assertion improving	(Reaction)*	Consider adding to training manual as discussion questions.
Hope and optimism improving	(Reaction)*	Consider adding to training manual as discussion questions.
Enjoyment of nature and beauty improving	(Reaction)*	Consider adding to training manual as discussion questions.
Ability to relax improving	(Reaction)*	Consider adding to training manual as discussion questions.
Reactions and choices improving	(Reaction)*	Consider adding to training manual as discussion questions.
Relationships improving (frequency and quality)	(Reaction)*	Consider adding to training manual as discussion questions.

* "Realm" indicates the research question area relevant to the theme ("Reaction" = reaction to training, "Related" = related to training experience, "General" = general experience).