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Alexithymia, Emotional Dysregulation, and Recovery from Alcoholism: Therapeutic Response to Assessment of Mood

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Abstract

This study is a secondary analysis of a randomized controlled trial which tested the effects of a gratitude intervention on well-being in a sample of individuals in outpatient treatment for alcohol use disorder (AUD). Follow-up qualitative interviews unexpectedly revealed that participants found the Positive and Negative Affect Schedule (PANAS) to be helpful to their recovery in the ways that it asked them to identify and rate their emotions. Participant statements were purposively sampled and analyzed using grounded theory methods to produce a conceptual framework illustrating the process of mood identification and its sequelae. Evidence of existing alexithymia and emotional dysregulation, dominance of negative mood, and increasing ability to identify, accept, and regulate mood as part of recovery was found. Findings suggest that emotion regulation is a compelling topic for those in recovery from AUD, and may deserve a more prominent role in treatment.

Keywords

addiction/substance use; alcohol/alcoholism; emotions/emotion work; grounded theory; recovery

In this article, we report an unexpected finding which has implications for alcohol use disorder (AUD) treatment. The finding arose in the course of a randomized controlled trial (hereafter, the “parent” study) which tested the effects of a gratitude intervention on well-being among individuals in outpatient treatment for AUD. During feasibility and acceptability interviews conducted at the 8-week follow-up, the majority of participants from both the treatment and control groups (14 out of 17, 84.1%) stated that one of the psychometric scales in the protocol was helpful to their recovery.

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The scale was the Positive and Negative Affect Schedule (PANAS), a widely-used psychometric instrument, employed to measure changes in positive and negative affect, dependent variables of the parent study, by asking participants to rate the degree to which they felt 23 different emotions¹ on a daily basis for 14 days (Watson & Clark, 1994; Watson, Clark, & Tellegen, 1988). This instrument was neither hypothesized nor suspected to provide therapeutic benefit to the participants. Instead, it was assumed that the PANAS would function as a neutral measurement tool, just like the other psychometric instruments in the protocol. Thus, the finding that participants found the PANAS helpful emerged qualitatively and was not the focus of the initial investigation.

Two reasons made this finding worthy of further exploration. First, participants described it as helpful to their recovery, making the PANAS of interest for its therapeutic potential. Second, mood is relevant to the field of addiction because it plays a central role in conceptual models that explain motivation to drink (Cooper, Frone, Russell, & Mudar, 1995), persistent drinking in AUD (Carrico, 2014), and AUD relapse (Hendershot, Witkiewitz, George, & Marlatt, 2011). While both positive and negative mood are central in these models, negative mood has been reported as more salient and a stronger predictor of poor outcomes (Lowman, Allen, Stout, & Group, 1996; Marlatt & Gordon, 1980).

Mood is also central to alexithymia and emotional dysregulation, transdiagnostic conditions that are featured prominently in substance use disorders and are associated with negative outcomes. *Alexithymia* is the difficulty identifying, naming, and expressing emotions (Kauhanen, Julkunen, & Salonen, 1992; Timoney & Holder, 2013). Its prevalence among individuals with AUD is reported to be between 45 and 67% (Thorberg, Young, Sullivan, & Lyvers, 2009). Alexithymia is associated with additional risk factors such as higher levels of negative emotion, more distressing somatic symptoms (Connelly & Denney, 2007; Lumley, Ories, Stettner, Wehmer, & Lakey, 1996; Taylor, Parker, & Bagby, 1990; Thorberg, Young, Sullivan, & Lyvers, 2009), and immature ego defense mechanisms (Helmes et al., 2008; Parker, Taylor, & Bagby, 1998; Stasiewicz et al., 2012), as well as higher rates of behavioral addictions, such as eating disorders and gambling (Kun & Demetrovics, 2010; Uva et al., 2010). *Emotional dysregulation* includes factors that define alexithymia but is more comprehensive, representing difficulty modulating emotions and using emotional cues adaptively to interact effectively with the environment (Gratz & Roemer, 2004; Gross & Muñoz, 1995; Stasiewicz et al., 2012). Berking identifies the structural components of successful emotion regulation to include factors associated with recovery from alexithymia (e.g., being aware of emotions, identifying and labeling emotions, accurately interpreting body sensations related to mood) and factors related to effective response to emotion (e.g., using emotional cues to inform action, accepting and then modifying negative emotions, confronting versus avoiding distressing situations, and being able to self-soothe when in distress) (Berking, 2010; Berking et al., 2011). In a study of individuals with AUD, those with fewer emotion regulation skills at baseline were more likely to drink during treatment, and those with fewer emotion regulation skills at discharge were more likely to drink at follow-up (Berking et al., 2011). Therefore, when participants stated that rating their mood

¹In this paper, “mood,” “emotion,” and “affect” are synonymous.

was helpful, we suspected this was indicative of larger, important processes related to mood and the AUD recovery process.

To our knowledge, no previous study has explored the lived experiences of individuals with AUD as they grapple with mood, alexithymia, and emotion regulation while pursuing AUD recovery. Orford et al. (2006) identified a “neglect of the client’s perspective in the alcohol problems treatment field” and argue that “asking clients about their experiences is likely to be one helpful source of information” in addictions research (p. 68). Therefore, this secondary data analysis (hereafter, the “current” study) analyzes and interprets participants’ comments about their experience with the PANAS in order to answer the following research questions:

1. How are mood identification and its sequelae experienced by individuals with AUD?
2. Can these experiences and processes be integrated into a conceptual framework?
3. Do participants express differences in the discovery of negative mood versus positive mood?
4. Are indicators of alexithymia and emotional dysregulation present in participant statements? Are indicators of successful emotion regulation present, indicative of recovery?

Methods

Parent Study

The parent study tested the effects of the Three Good Things exercise (Seligman, 2005) on mood and well-being in a sample of individuals in treatment for AUD. The exercise asks participants to write about three good things that happened in the past 24 hours and why they happened, under the hypothesis that the exercise would increase positive mood and well-being. Results from the parent study indicated that indeed it decreased negative mood and increased certain aspects of positive mood compared to the placebo group (Author citations).

The recruitment site was an outpatient substance use disorder treatment program in the Midwestern U.S. Inclusion criteria required alcohol to be the primary addictive substance among individuals at least 18 years of age who had access to the internet. With the exception of AUD, an otherwise psychiatrically stable sample was sought. Therefore, individuals were excluded if they had diagnosed personality disorders, severe cognitive deficits, untreated psychiatric illness, or current suicidal or homicidal ideation. Prospective participants were informed that this was a study about the daily lives of individuals in treatment for substance use disorders. Twenty-three participants were randomly assigned to either the treatment or control group. The treatment group completed the Three Good Things exercise daily for 14 days; the control group completed placebo questions on the same schedule.

Both groups then completed the Positive and Negative Affect Schedule (PANAS). The PANAS (Watson & Clark, 1994) uses individual emotions as stems (e.g., “excited”) and

asks respondents to rate the degree to which they felt that emotion according to a 5-point Likert-type response format ranging from 1=*very slightly or not at all* to 5=*extremely*. We asked participants to rate how they felt, “right now, in the present moment,” on 23 emotions. Ten emotions represented negative affect (afraid, scared, nervous, jittery, irritable, hostile, guilty, ashamed, upset, distressed), ten represented activated positive affect (active, alert, attentive, determined, enthusiastic, excited, inspired, interested, proud, strong), and three represented unactivated positive affect (calm, at ease, and relaxed). Therefore, participants in the control and treatment groups rated how they felt on each of these 23 emotions at baseline, daily for 14 days, and at the 8 week follow-up. At baseline, Day 7, Day 14, and the 8-week follow-up, participants also rated an additional 37 feelings in the full version of the PANAS-Expanded Form and completed other psychometric scales relevant to the parent study, to assess, for example, drinking consequences and psychological well-being.

One-on-one interviews about participants’ experiences of the treatment and control conditions comprised the last stage of the parent study. These interviews were audio-recorded and transcribed. All participants who completed the parent study (N=22) were invited to be interviewed; 17 agreed and participated, and 14 commented on the PANAS. Informed consent was obtained at the baseline interview, which took place in spring of 2013. The study was approved by the appropriate Institutional Review Boards.

Current Study

The current study is a qualitative secondary data analysis. The study population is comprised of the 14 individuals who mentioned their experience with the PANAS during the final interviews in the parent study. Initially these comments were unexpected, but after the interviewer noticed the pattern, she began asking specifically about experiences with the PANAS. In each case, the interviewees mentioned that the PANAS helped them to become aware of emotions that had previously been hidden from awareness. These participants were an average of 43.4 (SD=12.0) years of age and reported an average of 16.4 (SD=3.1) years of education. Fewer than half (42.9%, n=6) were female and one individual was non-European American (7.1%). Six (42.9%) were married or cohabitating with a significant other versus being divorced, separated, widowed, or single. The majority were employed full time (64.3%, n=9). At baseline, participants reported days since last substance use which ranged widely from 15 days to 1,855 days (mean = 455.7, SD = 611.4). This was to be expected, because the recruitment site featured long-term treatment groups and medication management for individuals at all stages of recovery.

When coding the final interviews in the parent study, one code captured text segments in which the participant described their experiences with the PANAS instrument. Interviewer prompts that elicited such descriptions included, for example, “What if anything made the daily surveys satisfying or unsatisfying?” “Did [the study] have an effect on your thoughts or thought patterns?” “You mentioned [the study] helped with things you can work on. Can you say a little more about that?”

In the current study, these text segments were purposively sampled from the 14 interviews. We isolated 39 unique segments of text, which ranged in length from 31 to 927 words. Similar to methods developed by Staller and Nelson-Gardell (2005), these discrete segments

of text serve as the data for the current study and were subjected to inductive analytic techniques described in the next section. All qualitative coding in the parent and current studies employed NVivo version 10 software (QSR International, 2013).

Data Analytic Approach to the Current Study

The current study applied an analytic technique borrowed from grounded theory methodology, following the principles articulated by Charmaz (2014). Though the architects of grounded theory differ in their approaches to coding, they agree on its centrality to grounded theory analysis (Walker & Myrick, 2006). Coding, however, is also central to other approaches to qualitative research, including phenomenological inquiry and discourse analysis (Starks & Trinidad, 2007). The grounded theory aspect of our coding came through an emphasis on gerunds in the coding process and the use of constant comparison (Charmaz, 2014). Charmaz writes that gerunds “nudge us out of static topics and into enacted processes” which focus our analytic attention on actions, in turn aiding the researcher in “seeing sequences and making connections” in processes that aid theory development (Charmaz, 2014, p. 214).

In the first phase, the first author employed a line-by-line analysis of the 39 text segments and applied at least one code expressed as a gerund to each line of text to build a conceptual framework of the overall range of experiences described. In this approach, the unit of data analysis was the text segment by line. For example, this statement from the transcript, “... sit down with people and bounce some ideas off each other and get it off your chest,” was coded as “sitting with people, getting it off your chest.” This process produced 435 codes, each related to a single line of text. In the next step, these codes were collapsed into 16 higher-order codes, including, for example, “drinking and feelings,” “expressing feelings,” “feeling bad about feeling bad,” “experiencing negative mood,” “experiencing positive mood,” “PANAS as challenging,” “PANAS and counseling,” and “connecting emotional health to AUD recovery.” Two additional higher-order codes, “finding PANAS helpful” and “acting on PANAS,” contained nested subcategories which contained original sets of gerunds. For example, “finding PANAS helpful” contained the subheadings, “helping me identify how I am feeling,” “rewarding and affirming to identify my emotions,” “finding PANAS to be different from what I usually do,” “learning what I’m feeling is learning about myself,” and “getting at what I’m feeling.” The higher-order code entitled, “acting on PANAS,” contained the sub-codes “being called to action” and “deepening understanding of ‘why’ and ‘discovering what’s going on.’” One of the 16 higher-order codes was a repository for statements that were deemed not relevant to our research questions, for example, “being unsure how to recommend changes to the survey” and “currently receiving psychiatric treatment.”

In the second phase, the second author used the same gerund-coding method to gain an understanding of how individual participants experienced the process relative to our empirically-based conceptual framework. In this approach, the unit of analysis first consisted of text segments comprising responses to each interview question, grouped by each of the 14 participants, and then progressed to line-by-line coding. Using this approach, the second author initially identified 60 codes, most of which contained multiple selections

of text, to which she added an additional 14 after collaborative discussions with the first author. Throughout data analysis, the first author maintained a concept-based approach to the unit of analysis by studying the assigned gerunds; the second author maintained a speaker-oriented approach to the unit of analysis, studying statements in context of who the speaker was. As analysis progressed, to triangulate the process, each of these authors approached the task from these varying units of analysis ultimately finding a consensus that fit the data from both approaches.

We employed the constant comparative method that is central to grounded theory and involves both comparisons between points of data and comparisons between the researchers' prior perspectives and what they are presently seeing in their data (Charmaz, 2014). This method was used by both the first and second authors through the coding itself and then through in-person discussions and the sharing of memos, in which the codes were raised to theoretical concepts. During one working session, the first and second author examined emerging themes based on codes that were more recurring and more populated with data. At this stage, we began to identify prevalent themes and generate hypotheses about how the themes related to each other. Here it became clear that participants expressed that their experience with the PANAS represented stages that unfolded over time, from discovering to interpreting to acting.

Based on these analyses, we developed a preliminary model of the stages through which participants described moving. During this time, the team continued to make further comparisons between participants' experiences and the pattern emerging to form the stages of the preliminary model to test this model against the data. This phase included rereading and recoding within the incident codes by the second author. The second author also made frequent comparisons between the codes contained in a given category, in order to understand the different facets of potential stages of the model. These comparisons led to a refined version of the model described below.

Interpretive Results²

Based on our analysis, we observed clear stages through which many participants described moving, from discovering hidden feelings to identifying whether the feeling was positive or negative, to interpreting those feelings, to acting based on the feelings. Figure 1 provides a visual representation of the sequence of stages we observed.

Table 1 depicts the stages through which each of the 14 participants described moving, and whether they found the experience helpful and/or challenging. "Discovering hidden affect" was true for all participants who mentioned the PANAS. In the "Identifying" phase, participants described both positive and negative affect, but the "Interpreting" and "Acting" phases were dominated by description of negative affect only. While some participants noted that particular phases were "helpful" or "challenging," others noted that the process overall was either "helpful" or "challenging."

²When referencing our participants in the presentation of results which follow, we alternate male and female gender pronouns to protect participant identity in this small sample.

The following portion of the manuscript presents evidence from the data of participant descriptions of moving through each phase and evidence of participants describing each phase as helpful and/or challenging.

Discovering Emotion

Becoming Aware of Hidden Affect—Completing the PANAS seemed to help participants plumb an inner boundary, a kind of psychic membrane, which separated emotion that was within conscious awareness from emotion that was beyond conscious awareness. Each of the 14 participants described the PANAS in this way, with the majority discovering that they felt positive or negative emotions that they had not been aware of while finding this process both *challenging* and *helpful*.

Challenging: Half of the participants specifically noted difficulty identifying their emotions even when presented with the list of feelings that are part of the PANAS instrument. They mentioned that it was “hard” or “a struggle” to identify what they were feeling at a particular moment:

[The PANAS was] challenging because it’s a matter of understanding where I’m really at and I know that’s still something I struggle with. What am I trying to tell other people that I want to believe about myself, and what’s real? Where am I really at? That was a struggle to pay attention to every single day: ‘How am I feeling today? What’s really going on inside of me?’

The level of difficulty reached the point of discomfort for some. One participant noted that his challenges in identifying feelings made being a participant in the study a less enjoyable experience for him, to the point of finding it both “tedious and difficult.” Some not only had a hard time identifying the feelings themselves, but also had difficulty rating the extent to which they felt them on the five-point Likert response scale, describing that it was hard to determine the depth and intensity of the feelings they had identified.

Some participants indicated that the PANAS was a challenge because it diverged from the ways in which they usually dealt with feelings. One participant, by way of explaining his earlier attempts at increasing emotional awareness, mentioned that he could name his feelings in the context of processing issues in a treatment group, but that he shied away from the practice when alone, preferring to “move on” when feelings emerged. Two participants mentioned that they secluded themselves from outside distractions and settled down quietly before completing the PANAS in order to be able to give careful consideration to what they might be feeling and accurately identify and rate their emotions. In fact, many described taking time while completing the instrument or immediately before, in order to identify their feelings. One recalled a need for “some time and some peace and some reflection” in order to connect with his feelings. He noted he would close his office door and “try to put myself in a space where I could be more in touch with how I was feeling at that point.” These were practices they did not normally engage in but that were necessary to tap these emotional domains.

The need to sit quietly before identifying feelings suggested that distractions would make this task more difficult. In fact, a participant mused that those in the early stages of their

recovery would probably face even greater challenges with the PANAS because of the stressful and often chaotic circumstances that attend early recovery. Another echoed the possibility of obstacles or distractions in identifying feelings by noting that he found the exercise easier on days when he felt physically well.

Some connected their difficulties completing the PANAS with the relationship between emotions and drinking. Another admitted that “a big part” of her substance use had been about numbing her emotions, and described how getting sober involved a new process involving feeling her feelings. This experience was also frustrating because it was hard to identify which mood was pressing to the surface at a given time. She implies here that when feelings come up, the urge to drink can follow, because “that’s what your natural response is”:

You’re so used to burying, you’re so used to not feeling because of the drugs and alcohol. You’re just numb for so many years. In a lot of cases it’s years that you’ve done that to yourself. When you take away drugs and alcohol those feelings are going to start coming up which is very difficult to deal with because it’s new. It becomes a new thing to actually feel feelings and to recognize them. It gets frustrating because sometimes you can’t put your finger on it. And it gets frustrating because naturally you’re just so used to shoving those feelings down with the drugs and alcohol that that’s what your natural response is.

Helpful: Given the stated difficulty of experiencing emotions again after using alcohol to numb affect, the PANAS seemed genuinely helpful to individuals with the difficult task of identifying what they were feeling. Its very structure appeared useful in guiding the process, by asking whether the respondent was feeling 23 distinct feelings one-by-one, and then providing an opportunity to rate each feeling’s intensity. Multiple participants expressed that they preferred completing the scale to providing a narrative response about their feelings because the scale provided a list of possible emotions and a visual representation of overall mood furnished by the Likert scale:

I think those adjectives and words really helped me determine, ‘Yeah, that’s how I’m feeling.’

This participant also noted that the longer list of feelings offered on select days was “helpful” by offering her a greater variety of potential feelings “because it made [her] really think further” about what emotions she might be experiencing. Another participant recalled a six-item feelings list from his treatment program, and how he felt confined and “really frustrated” by having to choose feelings that were not entirely accurate reflections of his emotional state. In general, participants commented that the PANAS helped them become aware of what they “really” felt:

And from [the PANAS] you kind of look, you know, ‘Have I really been feeling like this?’

Again going back to the adjectives that were used [in the PANAS] and thinking about, ‘Gee, I really feel that way.’

Participants described this experience as eye opening and revealing:

It opened my eyes to look at and think ‘Wow, okay. That is what’s going on.’ To do [the PANAS] on a daily basis ... it revealed a lot.

Three participants’ progress through the model stopped at the discovery stage, with no mention of interpreting results or acting because of them. However, they still found the increased awareness to be useful on its own and potentially beneficial in their recoveries from AUD. One participant reflected on his difficulty in identifying his emotions at a given point in his recovery, and used that experience to reflect on how others might grapple with emotions during the early stages of recovery and theorize about the best time in recovery to address emotional issues, a line of thought echoed by others in the Interpreting phase below. For another participant who appeared to stop at the discovery stage, the process of becoming aware of emotions through completing the PANAS brought to mind a more global awareness of her decreased reactivity to stimuli that had previously angered her, as well as her improved ability to cope with stress. She noticed how far she had come by witnessing a relative become angry and thereby realized how much she herself had changed.

Identifying Positive and Negative Emotion—Immediately upon gaining awareness of previously hidden mood came the identification of the valence of that mood; that is, whether the mood was “positive” or “negative.” While two participants discovered positive emotion, the majority of participants (12/14, 85.7%) discovered negative emotion (see Table 1).

Interpreting

Interpreting those discovered emotions, making sense of them and ascribing meaning to them took place in these data only in response to negative mood. This process was also reported as both challenging and helpful.

Challenging—Many participants were surprised to realize that they felt worse than they had thought. The surprise seems to indicate that participants believed that, on a daily basis, they struggled with fewer negative feelings than the PANAS revealed. One participant even felt that she had been “delusional” about her feelings prior to the study, meaning that she was not aware of the extent of her negative feelings. Another felt the discovery of negative feelings “kind of triggered some odd stuff for myself, a realization,” she went on to say that even after completing the gratitude exercise she “still had a lot of lousy feelings about myself and fears, anger, anxiety, and stuff like that. I mean I knew they were there but I guess I never realized how much a part of my thought they really are.”

Multiple participants viewed their affect as a marker of their progress in recovery. When they felt bad, they interpreted it not as a passing mood but as an indicator that they were not as far along in recovery as they had previously thought. Some were surprised that they still felt negative affect, with one summarizing the sentiment with, “I think I should be feeling better now.” When asked whether it was upsetting to realize that he felt worse than he thought, one participant responded, “Not necessarily upsetting, just taught me that, like I said, I’ve been working on a lot of things for a long time and it’s just how much more work I have to do. A realization, I thought I was progressing but in a lot of ways I haven’t and that’s not good.”

Helpful—Interpretation of negative affect seemed helpful to some participants. For some, the realization of negative affect led them to think about its relationship to their alcohol use and the coping mechanisms they had developed in recovery. One participant thought it might be helpful to see if the urge to drink was stronger on days when his negative affect was higher. This participant hypothesized the two would co-occur, suggesting that such insights might help him resist drinking urges more effectively. Other participants noticed that negative mood helped engage existing coping mechanisms, such as spirituality and processing feelings with others.

For some, the interpretation stage was useful because the surprise of discovering negative affect enabled them to recognize a measure of self-delusion about their feelings. One participant recalled anxiety in reviewing his responses to the PANAS, knowing that they would reflect “the real me,” but did not mention any benefits of this realization. Another found the results “distressing, but insightful,” indicating possible benefits from this realization. Others, however, considered this information valuable because the surprise itself pushed them closer to a readiness to deal honestly with their emotions or because knowing their real feelings could prevent them from acting destructively including erupting in anger and/or drinking:

When you start recognizing how you’re feeling, then sometimes you might not snap that much at people. For me, I kept everything up and it’d be the wrong person just did something that was the most stupid, minor thing but I’ll just let them have it because everything was piling on and I had to have it, let it go. And if you don’t let it go, then I drink.

Although the majority of participants reported that they discovered negative mood, one participant stated that the PANAS was helpful because it made him realize the *absence* of negative mood: “[The PANAS] was a great tool to realize whether I was hyper or agitated; it made me feel good about myself because I wasn’t having a lot of those [negative] feelings. Some days I was just so totally calm that it’s just unbelievable.” Several participants found this phase helpful and stopped at this stage (see Table 1).

Acting

After discovering hidden emotion and finding it to be negative in valence, some participants generated a plan of action to down regulate these difficult feelings.

Challenging—The realization of persistent negative affect might have been discouraging, but ultimately four participants created an action plan to address negative mood. The majority expressed no plans for action, and this in and of itself might indicate difficulties with this stage, perhaps suggesting the presence of direct obstacles or a lack of options in terms of what steps might be helpful. For example, one participant expressed a great deal of discouragement related to the discovery of negative mood without mentioning any ideas for moving forward.

Helpful—Taking action was reported as a problem-solving mechanism that was implicitly helpful. Four participants interpreted their feelings as showing them what they needed to work on with specific attention to doing things to fix or be rid of negative mood:

And if it's a bad feeling, if I ... do feel a little complacent then okay, what can I do to fix that?

And if it wasn't a lot of positive feelings then there's something that I need to work on. Again going back to [the list of feelings] and thinking about 'Gee, I really feel that way.' Or 'I need to help myself get out of, particularly, the negative area.'

Participants wished to go into action to address negative affect, though they varied in their approaches. Some mentioned bringing up their responses in counseling. One participant who had brought her newly discovered feelings into a counseling session said that she found the PANAS daily record to be a good complement to the work she was doing with her therapist, reinforcing the idea that keeping track of feelings was a good way to monitor treatment progress and to draw attention to areas of life that needed greater focus. One mentioned that negative mood indicated trouble with his "spiritual connection." He described that when feeling bad he might "work on my spirituality, maybe reminders of how I could be of better service to others, just getting out of my head on how I'm feeling that day." Another participant described how he would notice feeling bad, but then his mood improved after taking action: "[A]fter I slept on it or talked to my sponsor, then I can say, I'm okay. I'm okay here." One participant described the whole process as helpful, linking his emotional discoveries quite closely to actions which would assist with mood improvement:

As I'm learning and will continue to learn, feelings and how you deal with them [are] very important. Especially for recovery, but I also think that they are important for anyone in normal daily living. It's nice to be able to read a question [on the PANAS] and realize that that's the feeling you're having, and maybe find a way if it's a bad feeling to make it a better feeling. And if it's a good feeling, how to keep it.

One participant took a form of cognitive action, during the interview itself. She was distressed at discovering negative emotion, wondering, "Now what's wrong with me still?" Rather than allowing negative thoughts to spiral, however, she countered this tendency with a more realistic reframe:

And I know [recovery] is not a magic fix either because I didn't expect, if you get sober to be all of a sudden everything is perfect. That's not the way it works. ... So it's going to take you a little longer to feel better.

One participant described taking action in a way that was helpful to her, but which did not fit within our conceptual framework. She talked about taking action as part of the "discovery" phase. This participant described that when she is "going through something" she isn't sure what to make of it: "... I don't know what's going on. I don't know what to think." During these times, she would, "... sit down with people and bounce some ideas off each other and get it off your chest and stuff. That's very helpful and that kind of helps me, like saying it out loud to identify where I'm actually at." Four participants described going all the way through to this stage (see Table 1).

Discussion

Unexpectedly, we discovered that participants in a randomized controlled trial found that completing the PANAS was influential in their recovery. Application of methods from Grounded Theory methodology to analyze these qualitative data resulted in a process model of the phases the majority of our participants described passing through. This process model included discovering emotion, which included becoming aware of hidden emotion and identifying whether the emotion was positive or negative, and then, if the emotion was negative, interpreting it and acting on it. Not all of our participants moved through all phases of the model, but all experienced the discovery phases (14/14, 100%) and 12/14 (85.7%) described identifying positive or negative feelings. Almost all (13/14, 92.9%) found the process helpful and the majority (9/14, 64.3%) found it challenging (See Table 1). These findings along with our results reported above answer our first two research questions: 1. How is mood identification and its sequelae experienced by individuals with AUD? 2. Can these experiences and processes be integrated into a conceptual framework? The discussion that follows focuses on the remaining research questions, treatment implications, and study limitations.

Do participants express differences in the discovery of negative mood versus positive mood?

Negative mood dominated participant reports—Participants were six times more likely to mention negative mood than positive mood (See Table 1). This is not surprising. Established theories of addiction suggest that negative mood predominates well into periods of addiction recovery. The hedonic homeostatic dysregulation model posits that chronic use of psychoactive substances deregulates the brain's reward system, making it difficult to experience pleasure in response to ordinary daily positive activities and pleasant life events (Koob, 2008). In addition, dysregulation of the body's stress-response system leads to increased stress reactivity, making stressful situations more strident, longer in duration, and harder to recover from, resulting in more negative mood overall. Difficulty experiencing positive mood combined with excesses of negative mood drive ongoing drinking (Carrico, 2014), pose a formidable threat to sobriety (Lowman et al., 1996; Marlatt & Gordon, 1980), and persist for some time into recovery (Koob, 2008). This phenomenon explains why our participants might have commented more often on negative than positive mood, and why negative mood was more salient to them overall. Even positive mood was conceptualized as absence of negative mood. Describing the PANAS, a participant stated, "[I]t made me feel good about myself because I wasn't having a lot of those [negative] feelings."

The discovery of negative mood, but not positive mood, led to interpretation and action—Here our process model mirrors existing frameworks of affective-cognitive-behavioral functioning, such as those which undergird Cognitive Behavioral Therapy (CBT), and theories of cyclic emotional dysregulation among individuals with substance use disorders (Carrico, 2014). When negative mood, but not positive mood, was discovered by participants in this study, they took the additional steps of interpreting its meaning and following it with action. Cognitive models of human behavior state that when an event occurs it is followed by automatic thoughts which are in turn followed by an emotional,

behavioral, or psychological reaction (Beck, 2011). In our process model, the “event” was discovery of hidden mood revealed by the PANAS. For participants in this study, only negative mood prompted automatic thoughts (referred to in our model as “interpreting”) and a reaction (in our model, “acting”). Again, this is consistent with theories of heightened stress reactivity leading to increased negative mood among individuals with substance use disorders (Carrico, 2014).

Are indicators of alexithymia and emotional dysregulation present in participant statements? Are indicators of successful emotion regulation present, indicative of recovery?

Participants exhibited signs of alexithymia and emotional dysregulation, but also displayed insight and growing emotional intelligence—Participants’ difficulties with the PANAS depict the classic characteristics of alexithymia. Half of the sample admitted it was hard for them to identify their emotions, which is in keeping with the definition of alexithymia. Being unaware of emotions is another feature of alexithymia. While all participants identified hidden mood, they did so because their interaction with the PANAS enabled discovery. Without completing the PANAS, it is conceivable that their feelings would remain hidden until another circumstance brought them to the surface, if at all.

Participants’ desire to act in response to negative mood can be viewed in two ways. Down regulating negative mood is a feature of healthy emotion regulation. Difficulty tolerating uncomfortable feelings, however, is a sign of emotional dysregulation. It was not clear from these data whether participants’ efforts to feel better are signs of healthy ability to stabilize mood or more maladaptive expressions of intolerance of distress. It is noteworthy that we observed several examples of the desire to eliminate negative mood and no examples of the wish to sit and better tolerate distress, a skill taught in Dialectical Behavior Therapy (Linehan et al., 1999), or detach from negative mood non-judgmentally, a skill taught in Mindfulness Based Relapse Prevention (Bowen, Chawla, & Marlatt, 2010). In any case, improved tolerance of emotional distress is a skill related to healthy emotion regulation (Berking, 2010; Berking et al., 2011; McKay, Wood, & Brantley, 2007) with specific implications for alcohol use disorder and relapse; in one study, higher tolerance of negative emotions predicted lower probability of drinking in a sample of individuals in treatment for AUD (Berking et al., 2011).

A minority of participants interpreted negative feelings as global markers of overall emotional ill health and poor progress in recovery, for example, “I think I should be feeling better now” and “I thought I was progressing but in a lot of ways I haven’t and that’s not good.” Here, participants realize they are experiencing negative feelings and understand it as suggestive of a larger negative phenomenon, for example, that they are not “better now” and not “progressing” as previously thought. This type of negative globalization is a type of cognitive distortion associated with clinical depression (Segal, Williams, & Teasdale, 2001).

Contrary to the interpretation of these participants, existence of negative emotion does not necessarily indicate that recovery is off course, that the person suffers a flaw or defect, or that the feeling is an indicator of emotional ill health. Ability to accept, tolerate, and respond

in healthy ways to negative emotion is an indicator of emotional intelligence (Cole, Michel, & Teti, 1994) and signifies the kind of emotion regulation that can be a protective factor in preventing relapse. Small steps can build toward greater competencies in this area. Schutte and Malouff (2011) found that ability to act in the moment in ways consistent with emotional intelligence can lead to increases in more lasting trait emotional intelligence over time, which went on to predict favorable drinking outcomes in a sample of university students.

Treatment Implications

Results suggest that patients showed signs of alexithymia and emotional dysregulation as well as heightened reactivity to negative mood. They also indicate more purposeful use of existing treatment interventions to address these conditions as a central part of AUD treatment. There are a number of evidence-based treatment manuals in press with components designed to target these objectives. Some of these manuals specifically address addiction, for example, coping skills manuals based on CBT contain content on dealing with cravings, emotions, and anger management, but do not focus explicitly on alexithymia (Daley, 2006; Monti, Kadden, Rohsenow, Cooney, & Abrams, 2002). *Mindfulness Based Relapse Prevention for Addictive Behaviors: A Clinician's Guide* encourages increasing mindful awareness of emotion and the practice of noticing moods non-judgmentally (Bowen et al., 2010), activities that promote emotional literacy and emotion regulation. Treatment manuals that do not address addiction provide valuable exercises, activities, and tips for promoting emotion regulation. For example, an alexithymia treatment manual developed by Levant and colleagues (Levant, Halter, Hayden, & Williams, 2009; Levant & Williams, n.d.) contains observational and skills-based activities that build on one another, in which mood is first identified in other people and then in one's self. *The Dialectical Behavior Therapy Skills Workbook* (McKay et al., 2007) contains psycho-educational curricula on the topic of mood ("Your emotions: What are they?" p. 121) and alexithymia exercises ("To help you recognize your emotions, it's often helpful to say how you're feeling out loud," p. 129).

Limitations

While this study makes a contribution to a gap in the literature about the lived experience of individuals with AUD as they grapple with emerging emotions, the data used for the current analysis were not gathered originally for this purpose. Therefore, we were limited in our ability to explore findings in more depth.

Every research study takes place in a specific physical place, among a specific population, during a defined historical moment and cultural context. Data were collected in the spring of 2013 in a Midwestern city. Participants were highly educated and the majority were European American, married, and employed. Participants represented a wide range of lengths of sobriety. Charmaz (2014) warns about making assumptions about the meaning of data decontextualized from cultural and historical context. Participants were motivated to participate in this study, which was described in the informed consent document as, "research about individuals who are in treatment for substance-use disorders to find out more about aspects of their daily lives." Perhaps those who chose to participate were different from the individuals who learned about the study but declined participation;

participants might have had greater interest in wellness or self-improvement or were more motivated to help others. Given the nature of our sample and context, caution must be taking in applying our findings to all individuals with AUD.

Future Research

Our data suggest that an in-depth qualitative study directly targeting alexithymia and emotion regulation among individuals with AUD is warranted both to confirm our findings and expand on them. A research study that tests the PANAS instrument as an adjunct to treatment could provide evidence for its efficacy in helping individuals with AUD with emotional intelligence and emotion regulation. Such a study also could determine optimal timing of the use of the PANAS in a course of treatment—should it be employed in primary treatment, or during aftercare? Future studies could examine any correlation between length of recovery and stage of progress in resolving alexithymia.

The current study provides a new angle on measurement reactivity. Self-monitoring of a target behavior (such as physical activity or food eaten) promotes positive changes in that behavior, suggesting that measurement itself can act as an intervention (Burke, Wang, & Seivick, 2011; Michie, Abraham, Whittington, McAteer, & Gupta, 2009). To our knowledge, however, this is the first study to document the potentially therapeutic effect of the measurement of mood. Further investigation might illuminate whether in fact the measurement of mood has clinical utility.

Conclusion

In addition to illustrating the importance of treatment interventions to address alexithymia and emotion regulation and showing the therapeutic potential of the PANAS measurement instrument, our findings also underscore the overall importance of knowing one's emotions to well-being and recovery. It might be true that in the course of numbing and distorting feelings, alcohol masks and distorts an individual's sense of their very identities. Gross & John (2003) describe emotional suppression as leading to "incongruence, or discrepancy, between inner experience and outer emotion" (p. 349) which in turn promotes negative affect, isolation, and alienation.

Many Alcoholics Anonymous groups present members with a medallion on the anniversary of their sobriety date. Interestingly, the inscription on the front of the coin is taken not from AA's own literature, or from any of the writings of AA's co-founders. The inscription is not derived from a treatment center, or from a research finding, or from a spiritual or religious tradition. The phrase on the coin is from Shakespeare: "To Thine Own Self Be True." As participants delved within to "dig a little deeper into the emotional part," they plumbed beyond surface awareness for innermost feelings that expressed the way they "really" felt. Perhaps knowing one's true feelings is a gateway to knowing one's whole self more authentically, an affirmation of one's emerging sober identity which makes the process positive and worthwhile, even while "hard" and "distressing" at times.

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Figure 1. Framework for understanding the experience of individuals with Alcohol Use Disorder as the result of completing the PANAS mood assessment instrument

Table 1

Experience of the PANAS by Research Participant

Participant #	“X” Indicates Participant Described Moving through this Phase					“X” Indicates Participant Described the Experience as...	
	Discovering Emotion		Interpreting Negative Affect	Acting on Negative Affect	Helpful	Challenging	
	Becoming Aware of Hidden Affect	Identifying Positive Affect	Identifying Negative Affect				
1	X		X		X	X	
2	X				X	X	
3	X	X	X			X	
4	X		X		X		
5	X		X		X	X	
6	X		X		X	X	
7	X		X		X		
8	X		X		X	X	
9	X		X		X	X	
10	X		X	X	X	X	
11	X		X		X		
12	X		X		X		
13	X	X	X		X		
14	X				X	X	

Table 2

Number of Participants who Experienced each Phase of the Model as Challenging and/or Helpful

	Discovering Emotion		Interpreting Negative Affect	Acting on Negative Affect
	Becoming Aware of Hidden Affect	Identifying Affect as Positive or Negative		
Only Challenging	5		3	1
Only Helpful	5		7	4
Both Challenging and Helpful	2		1	0