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Mindfulness-Based Substance Abuse Treatment for Incarcerated Youth: A Mixed Method Pilot Study

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The current study investigated the effects of an 8-week mindfulness-based substance use intervention on self-reported impulsiveness, perceived drug risk, and healthy self-regulation in a sample of 60 incarcerated youth. Forty-eight participants completed questionnaires pre and post intervention. Additionally, 16 participants from two of the final 8-week cohorts were interviewed in focus groups about their experience of the program immediately following its completion. A mixed-method embedded model was used, in which qualitative data was used in support of quantitative data. Paired *t*-tests revealed a significant decrease ($p < .01$) in impulsiveness and a significant increase ($p < .05$) in perceived risk of drug use from pretest to posttest. No significant differences were found on self-reported self-regulation. Focus group interviews conducted immediately following the intervention revealed three major themes: receptivity to the program in general, appreciation of the facilitator teaching style, and learning about drugs. Clinical implications and directions for future research are discussed.

Keywords: *mindfulness-based intervention, MBSR, substance abuse, juvenile offenders, incarcerated youth, self-regulation, transpersonal psychology*

Over the last thirty years research on mindfulness-based interventions have shown promising results for diverse populations including chronic pain patients (Kabat-Zinn, 1982), adolescent psychiatric outpatients (Biegel, Brown, Shapiro, & Schubert, 2009), and correctional populations (Himmelstein, Hastings, Shapiro, & Heery, in press; Samuelson, Carmody, Kabat-Zinn, & Bratt, 2007). One population that may benefit from the increased self-management abilities acquired through mindfulness practice (Baer, 2003) is incarcerated adolescents who struggle with issues of substance use.

In 2008, there were over 340,000 juvenile arrests for drug abuse violations, violation of liquor laws, drunkenness, and driving under the influence in the United States (Puzzanchera, 2009). The problem of incarceration among youth is indeed significant. Approximately 96,000 juvenile offenders in the United States were incarcerated in 2003 (Snyder & Sickmund, 2006). Williams, Tuthill, and Lio (2008) suggested that approximately 10-12% of youth offenders re-offend into adulthood and other researchers have suggested this percentage to be upwards of 25% (Snyder & Sickmund, 2006). Nonetheless, juvenile offending seems to fuel the

broader issue of crime and delinquency and therefore merits further attention.

Mindfulness meditation practices emphasize nonjudgmental awareness and acceptance of present moment experience (Kabat-Zinn, 1990; 2003). Meditation-based programs have been shown to improve psychological well-being and reduce recidivism (for a review see Hawkins, 2003; Himmelstein, 2011). Given mindfulness-based interventions' initial, albeit pilot efficacy with correctional populations and because research suggests that impulsivity—an inversely correlated construct to mindfulness (Baer, 2003; Kabat-Zinn, 1990)—is associated with higher recidivism and delinquency rates within incarcerated youth populations (Vitacco, Nuemann, Robertson, & Durrant, 2002), a mindfulness-based substance abuse intervention was chosen as the focus of this pilot study. Furthermore, mindfulness-based intervention research is beginning to burgeon with adolescent psychiatric (e.g., Biegel et al., 2009) and youth correctional populations (Himmelstein et al., in press), however none emphasize the treatment of substance use disorders. Therefore, there is a relevant need for contributing such new and innovative research to the literature.

A final intention in publishing this pilot study is to contribute to the field of transformative justice-based transpersonal psychology. Hartelius, Caplan, and Rardin (2007) suggested that transformative transpersonal psychology is the application of aspects of transpersonal psychology (e.g., spiritual practices, meditative practices) to pragmatic and socially aware causes. It was necessary to position the intervention under study here as a contribution to the field of transformative transpersonal psychology and not simply another manualized intervention just using cognitive mindfulness practices isolated from a larger context. A goal of this treatment is to emphasize holistic treatment practices, which include, alongside competent curriculum content, an advanced training and knowledge of creating authentic relationships with the target population.

Below is a brief review of the state of the research on mindfulness in adult correctional and substance abuse populations, along with findings from the current research on mindfulness with correctional and psychiatric youth populations. Next, an overview of the mindfulness-based substance use treatment intervention is presented. Finally, pilot data from an initial study of the current mindfulness-based substance use intervention is presented and discussed.

Literature Review:

Mindfulness-Based Stress Reduction in Relevant Applications

The majority of the empirical research on mindfulness in different populations has used mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990). Briefly, MBSR is an 8-week intervention where participants meet once a week for approximately two and a half hours and one day-long retreat. Skills taught include focusing on the breath in sitting meditation, the body scan meditation while lying down, and Hatha yoga postures. Mindfulness-based stress reduction has a long history of research and has shown consistency in reductions of stress and increased psychological well-being in different populations for the last 30 years. Although documented research is not plentiful, there is also literature dedicated to both correctional (Samuelson et al., 2007) and adolescent populations (Biegel et al., 2009).

MBSR in corrections. Samuelson et al. (2007) implemented the MBSR program in six Massachusetts prisons from 1992 to 1996. The MBSR program was administered to 1,350 inmates in one women's prison and

five men's prisons. Results showed statistically significant reductions ($p = .0001$), 9.2% for women and 7% for men, on Cook and Medley Hostility scales at all prison sites. Increased scores from pretest to posttest ($p = .006$), 8.3% for women and 3.8% for men, on the Rosenberg Self-esteem Scales were found at all program sites. The most dramatic reduction was found on the Profile of Mood States Scale, which dropped approximately 38% for women and 29% in men ($p = .0001$).

Samuelson et al. (2007) reported several modifications of the program that allowed it to be implemented in a correctional setting. For example, some prisons allotted a private room designated for MBSR practice alone, while others designated large open spaces concurrently being used by other inmates. Courses were sometimes compressed from the original 8-week length, to 6-week programs with shorter sessions. The intensive retreat was never allowed at any prison site. Still, the MBSR intervention proved to have a high completion rate of 69%, suggesting feasibility within correctional populations.

MBSR with adolescents. To date, very few empirical studies have investigated the effect of MBSR with adolescent populations. Two feasibility studies were found assessing the impact of MBSR with adolescent populations (Sibinga et al., 2008; Wall, 2005). Sibinga et al. (2008) explored the feasibility of the MBSR intervention with 11 HIV-infected African American adolescents. Given the pilot nature of the study, only brief interviews were conducted. Results showed that the MBSR intervention was feasible with HIV-infected youth given positive participant feedback after the completion of the course (Sibinga et al., 2008). In another pilot study investigating an MBSR-like intervention with adolescents, Wall (2005) combined Tai Chi practices and MBSR with middle school aged adolescents in a Boston area public school. Qualitative feedback from participants suggested improved sleep, well-being, relaxation, and reduced reactivity, even though participants were not committed to continuing mindfulness classes. Regardless, the results further support preliminary evidence that MBSR and other mindfulness-based interventions may be feasible treatments for adolescent populations.

In contrast to the two pilot studies above, one randomized clinical trial was found that employed MBSR with adolescent psychiatric outpatients (Biegel et al., 2009). Biegel et al. randomly assigned 102 adolescent psychiatric outpatients to either MBSR or a

waitlist-controlled group. The MBSR intervention was modified to fit adolescent needs in two ways. First, at home mindfulness practice time was reduced from 45 minutes to 20-35 minutes, and, second, presentations and discussion topics during classes focused primarily on issues related to adolescence. Participants ranged in age from 14-18 and were primarily female. Study measures were obtained at pretest, posttest, and 3-month follow-up. The 10-item Perceived Stress Scale (PSS-10), the State and Trait Anxiety Inventory (STAI), the 10-item Rosenberg Self-Esteem Scale (SES), and six of the nine subscales of the Hopkins Symptom Checklist 90 Revised (SCL-90-R) served as self-report measures at all three assessment points.

Approximately 60% of the participants from the intent to treat sample completed pretest and posttest assessment points. Results revealed that, relative to controls, MBSR participants showed significant decreases over time in state and trait anxiety ($p < .05$), perceived stress ($p < .05$), and four of the six psychopathology indicators assessed by the SCL-90-R ($p < .05$). Self-esteem also significantly increased within participants receiving the MBSR intervention ($p < .05$). Relative to controls, MBSR participants showed significant improvements in Global Assessment of Functioning (GAF) scores over time from pretest to posttest and pretest to follow-up ($p < .0001$).

Mindfulness-Based Interventions for Specific Populations

Mindfulness-based relapse prevention. As a result of research efficacy with the MBSR program, other similar and innovative mindfulness-based interventions have been created and researched. Mindfulness-based relapse prevention (MBRP; Bowen, Chawla, & Marlatt, 2011) is an 8-week mindfulness program incorporating elements of MBSR and relapse prevention. It is similar to MBSR in that formal meditation, yoga, and informal mindfulness are practiced in a group setting, and differs in that it was specifically developed for people suffering from addiction. In their primary pilot randomized clinical trial, Bowen et al. (2009) found that participants in the MBRP group had significantly less days of alcohol use throughout the intervention than those in the treatment-as-usual control condition. Furthermore, MBRP had a 65% attendance rate throughout its program suggesting its feasibility.

The mind body awareness project. Alongside new and innovative approaches such as MBRP, other

approaches for incorporating mindfulness with diverse and specific populations have also arisen. The Mind Body Awareness (MBA) Project, a non-profit based in the San Francisco Bay Area that teaches mindfulness practices to incarcerated youth, developed a 10-module mindfulness intervention tailored specifically to the needs of extremely high-risk and incarcerated adolescents. This intervention, like MBSR, incorporates formal mindfulness meditation and informal mindfulness exercises, didactic training, and group process. It differs from MBSR in that group discussions and exercises are specific to the issues that incarcerated youth consistently face, such as poverty, substance use and abuse, and community violence, and that much more emphasis is placed on the group facilitator to therapeutically engage and create authentic relationships with the participants (for an in-depth review of the curriculum, see Himelstein, 2009).

Preliminary research suggests that the MBA program can be feasibly implemented with high-risk and incarcerated youth. Himelstein et al. (in press) found that 60% of participants completed the MBA program and that self-reported stress reduced while self-reported self-regulation increased from pretest to posttest. Furthermore, in a qualitative study investigating the MBA Project, Himelstein, Hastings, Shapiro, & Heery, (in press) found that most youth who participated in the program were open and accepting of its mission and the techniques they learned. After being semi-structurally interviewed about their personal experience of the program, participants discussed feeling an increase in the ability to self-regulate. For example one participant stated:

I don't know if you remember when I first came here, I was hella hot [angry], and umm, we did the breathing, and I still felt mad, but then as I started doing more breathing, I started breathing in my room, just a lot of breathing, and the exercises you taught me with the stomach, the chest, those really helped...I still would have it [anger] but it wouldn't be as strong...Like if it was a 10, it would go down to a solid five or four. (Himelstein et al., in press)

A Mindfulness-Based Substance Use Intervention for Incarcerated Youth: A New Paradigm

Because of the accruing evidence that mindfulness-based interventions can be helpful to both substance abuse and incarcerated adolescent populations, the intention was to develop a specific program targeting

substance abusing incarcerated and high-risk adolescents. Working in support from organizations such as the MBA Project and reviewing the curriculum and literature from other programs like MBRP, a curriculum was developed with the goal of implementing a mindfulness-based substance use intervention for high-risk and incarcerated adolescents that was culturally sensitive, relevant to their experience, and that retained their interest (Himelstein & Saul, 2011). Briefly, this mindfulness-based substance use intervention is a group-based therapeutic treatment that incorporates formal and informal mindfulness practices, didactic drug education, experiential exercises, and group discussions into each module. Given the sensitivity and advanced training needed to provide therapeutic services to high-risk and incarcerated adolescents, the role of the group facilitator is of utmost importance in delivering this curriculum. This role includes specific qualities that must be present within each facilitator to ensure feasibility.

Qualities of group facilitators. Three major qualities must be explicitly practiced and brought forth into awareness by facilitators of this mindfulness-based substance use intervention. First, each facilitator must be committed to authenticity. That is, facilitators must be committed to honesty while working with this population. This includes being comfortable with oneself and not attempting to behave or speak in such a way that is not their natural method. Inauthenticity will only hinder rapport with group participants.

Second, facilitators must have an intention to create an authentic relationship with group participants. This is an intervention in which the level of depth and group cohesion will directly depend on the participants' trust of the group facilitator. Curiosity of participants' personal lives and skillful self-disclosure are used to develop authentic relationships.

Third, facilitators should not hold a stance of trying to "change" participants. That is, this intervention holds true to the existential truth (Bugental, 1965, 1987, 1990) that change is a choice of the client and that attempting to force a client to change only backfires and hinders rapport. Thus, the major intention is to provide a safe therapeutic environment where authenticity and human connections can occur.

The curriculum. The mindfulness-based substance use intervention of this study (Himelstein & Saul, 2011) is an 8-week, one session per week, program in which sessions last for 1.5 hours. Each session includes a mindful check-in (i.e., centering oneself, then discussing

present moment experience), experiential group activities (including mindfulness practice), group discussion, and didactic training. An emphasis is placed on new and diverse learning modalities. Therefore, the agenda of the major elements of each group follows a different format in each session (i.e., the mindful check-in is presented at the start of the group in one group and at other time points in other groups).

Two major components encapsulate this curriculum: drug education and the development of self-awareness. Drug education activities include learning drug categories and the impact of mixing certain drugs, debating about the positive and negative aspects of drug use, and how drugs impact the brain and body. These activities and didactic trainings are always used as a platform to unpack personal experience and develop self-awareness.

Self-awareness activities include role-playing, emotional awareness and regulation, empathy building, and informal and formal mindfulness practice. Informal mindfulness practice is infused throughout the intervention through brief, guided moments of awareness (e.g., the mindful check-in) and cognitive techniques that produce meta-cognitive states. Formal mindfulness practices include mindfulness meditations in each of the eight groups.

Methods

This study investigated the feasibility and preliminary effects of a mindfulness-based substance use intervention with incarcerated adolescents. Three central research questions guided this pilot study:

- 1) Can a mindfulness-based substance use intervention feasibly be implemented with incarcerated adolescents?
- 2) What is the effect of a mindfulness-based substance use intervention on impulsiveness, self-regulation, and perceived risk of illegal substances with a group of incarcerated youth?
- 3) How was the program viewed and received by participating youth?

These central research questions influenced an embedded mixed methods (Creswell & Plano-Clark, 2011) research design, in which quantitative pretest and posttest data were collected from a treatment group only and supplemented with qualitative focus groups to examine trends that might be related to participation in the treatment intervention. Creswell and Plano-

Clark suggested that supplemental, embedded data can be collected and analyzed at any point throughout the research process and that such data is weighted secondary to the primary data. In this study, primary importance was placed upon program completion rate and self-report dependent measures of impulsiveness, self-regulation, and perceived risk of drug use, while secondary importance was placed upon focus group interviews with participants about their view of the program.

The following directional hypotheses were undertaken for this study:

- 1) A mindfulness-based substance use intervention would be feasibly implemented with incarcerated adolescents.
- 2) Impulsiveness, as measured by the Teen Conflict Survey Impulsiveness scale (Bosworth & Espelage, 1995) will significantly decrease from pretest to posttest.
- 3) Perceived health risk of using substances, as measured by the Monitoring the Future questionnaire (Johnston, O'Malley, & Bachman, 1991) will significantly increase from pretest to posttest.
- 4) Self-regulation, as measured by the Healthy Self-Regulation questionnaire (West, 2008) will significantly increase from pretest to posttest.

Participants

Juvenile male inmates incarcerated in a juvenile detention camp in Northern California were eligible to participate in this study. Participants were referred to the mindfulness-based substance use intervention by order from the courts and probation camp staff. This study underwent a full review in the Institute of Transpersonal Psychology's research ethics committee. Informed consent was obtained from the presiding juvenile court judge and assent by each of the participants themselves. At the start of each 8-week cycle, demographic data was obtained within each self-report questionnaire packet. Age, ethnicity, and gender, among other demographic variables, were assessed. Participants ranged in age from 15-18 ($M = 16.3$) and identified ethnically as Latino ($n = 32$), African-American ($n = 6$), Mixed-Ethnicity ($n = 4$), Filipino ($n = 3$), Tongan ($n = 2$), and Indian ($n = 1$).

Procedure

Mindfulness-based substance use intervention groups were conducted in the program room at the juvenile

detention camp, a detention camp housing youth for a period of 6-9 months. Because of institutional limitations, a more advanced research design involving a control group and random assignment were not set up. Groups were conducted once a week for 1.5 hours' duration, with groups being facilitated on Tuesdays and Wednesdays of each week. For each 8-week treatment group, 8-12 participants were recruited. Two treatment groups were concurrently facilitated (one on Tuesday and the other on Wednesday of each week) in an effort to serve more youth at the juvenile detention camp. Six cohorts received the treatment intervention over a period of approximately 7 months. Two of the final cohorts volunteered to be semi-structurally interviewed in a focus group format immediately following completion of the program.

Quantitative Data Collection

Three pencil and paper self-report measures were administered to participants before and after completion of each 8-week cycle. The entire self-report measure packet took approximately 15 minutes to complete.

Perceived risk of drug use. Perceived risk of drug use was measured by the Monitoring the Future questionnaire (MTF) (Johnston et al., 1991). The Monitoring the Future questionnaire is a four-item scale ranging from 1-4 (1 = no risk; 4 = great risk). A score of "99" is given if youth are unfamiliar with the inquired upon substance. The Monitoring the Future questionnaire was validated with 12-16 year-olds and inquires about alcohol, cigarette, marijuana, and cocaine use.

Impulsiveness. Impulsiveness was measured by the Teen Conflict Survey Impulsiveness scale (TCS) (Bosworth & Espelage, 1995). This is a four-item scale ranging from 1-5 (1 = never; 5 = always). This scale was validated with middle school students and inquires about personal self-control.

Self-regulation. Self-regulation was measured by the Healthy Self-Regulation (HSR) scale (West, 2008). This is a 12-item scale with three reversed score items. Each item ranges on a 6-point likert scale from 1 (almost always) to 6 (almost never). The Healthy Self-Regulation scale was validated in a sample of high-school youth and inquires about pro-social self-regulatory capacity.

Qualitative Data Collection

During the last two 8-week periods of data collection, two cohorts (one from each 8-week cycle) volunteered to be interviewed about their experience

with the program in a focus group format. Following the eighth and final class, participants were semi-structurally interviewed for approximately 20 minutes. Questions that guided the semi-structured interviews included:

- What was your overall experience of this program?
- What made this program different, if anything, from other programs at this camp?
- Was this program helpful or not helpful in any way? Why?
- What was your favorite class and why?
- What was your least favorite class and why?
- Is there anything else you might like to add about your experience? If so, what?

Participants were encouraged to answer every question but not mandated. The microphone was passed around the circle and if anyone wished to not answer, they would be passed over with a chance to answer the question later if they changed their mind.

Results

Quantitative Results

Of the intent-to-treat sample of $N = 60$, 12 participants dropped out of the study due to getting released from the juvenile detention camp. Thus, the final sample was $N = 48$, with an 80% completion rate. Given the pilot nature of this study, results from all cohorts were collapsed into one large data set for each dependent measure and paired t -tests were conducted to measure any significant differences in mean scores from pretest to posttest.

There was a significant decrease in impulsiveness at $t(47) = 2.849$, $p < .01$ (one-tailed) and a significant increase in perceived drug risk at $t(47) = -1.746$, $p > .05$

(one-tailed). Despite trends in psychologically enhancing directions, there were no significant differences between pretest and posttest self-regulation scores, $t(47) = -1.090$, $p > .05$ (one-tailed). Table 1 summarizes these results.

Qualitative Results

Qualitative data analysis consisted of thematic content analysis as outlined by Braun and Clarke (2006). In this six-step method, each focus group was first transcribed verbatim in order to enhance familiarity with the data. Second, initial codes were designated across both focus groups. Third, codes were collated into potential themes. Fourth, the themes were reviewed to check if they were in conjunction with their coded extracts and the entire data set. Fifth, a thematic map was generated, and sixth, the themes were named and written.

As a result of the thematic content analysis, three themes were identified that were associated with the personal experience of participants of the focus groups. These included: receptivity to the program in general, appreciation of facilitation style, and learning about drugs.

Receptivity to the program in general.

This theme was defined by a general receptiveness to the program. Participants discussed having a positive experience with specific aspects of the program and being open to learning course content. When asked about what stood out in the program most, one participant stated:

I liked the mindfulness emotional activity where we shared about ourselves. That helped a lot, like, get an understanding of what people go through. It could be a problem with drugs, it could be reasons for their actions. The expression of feelings, emotions,

Table 1. Differences in Mean Scores Pre- and Post-Intervention

Measure	Pre-Intervention		Post-Intervention		$t(47)$
	M	SD	M	SD	
Teen Conflict Survey (TCS)	9.93	2.83	8.72	2.44	2.849**
Monitoring the Future (MTF)	13.10	2.89	14.02	2.84	-1.746*
Healthy Self-Regulation (HSR)	46.66	8.28	48.70	7.86	-1.090

* $p < .05$

** $p < .01$

could help. [Deep emotions] could be behind [psychologically, the use of] drugs and alcohol. And that's why that was my favorite activity.

Another participant discussed his receptivity to the group discussions undertaken in each class:

I like this program because a lot of the times when we're having conversations, it's better than in section time [down time in their dorms] when we're by ourselves or like not in a program and having a conversation. Like, in here, it's just way better. We have conversations and it's hella fun, but, in other programs we don't get a chance to do that. I like this program a lot. We get a lot of time to converse and express ourselves.

Appreciation of facilitation style. Many of the participants expressed some form of appreciation for the methods in which the groups were facilitated. They often commented on the styles of the facilitators directly or in relation to how the participants related to the class. One participant stated, when asked if he would like to add anything else to the end of the focus group:

I think this is a good program. We learn a lot about drugs and you guys ain't telling us, "don't go drink or don't go smoke," you feel me? We can express ourselves and not get a consequence because it's confidential in here.

Another participant discussed this intervention in relation to other programs at the camp:

I think this program stands out more than other programs because we just keep it real [honest] in here. The other programs, it's just basically showing up...in other programs, it's just showing up and I just want to get it over with. But here we get to keep it real.

Another participant discussed appreciating how the content and activities were aligned with his interests:

The fun part about it is that we're doing things that we like to do. It's not only just you guys coming in here [and forcing an activity]. You guys want to know what's interesting to us, you guys want the program to be interesting to us, so I like coming.

Learning about drugs. Learning about drugs was defined as participants discussing their learning

experiences in a positive manner. Participants discussed being interested in learning about drugs and appreciating the different multi-media through which course content was taught. One participant stated:

My view of this class was, learning. It was a learning experience. I learned new things. Like, we learned about how the nerve cells, how they don't connect and all that, how all that pleasure gets transported. Basically I just learned. I soaked a lot of stuff you had to teach us.

Another participant, when asked about what aspects of the course, if any, he liked, disclosed:

What was that one slide show? The one about the brain and all that? I liked that one because, umm, I don't know. For some reason, I got to focus really hard when we were doing that class. There was something about it, I think it's the way you taught it, I can't really explain it. The way you ran it was... interesting. I liked it a lot.

Discussion

This study supports previous research (e.g., Biegel et al., 2009; Bowen et al., 2009; Himelstein et al., in press) demonstrating that mindfulness-based interventions are feasible treatments for adolescent and substance using populations. Results confirmed the first hypothesis that the mindfulness-based substance use intervention would be feasible with a group of incarcerated adolescents. Only 12 participants could not complete the intervention due to being released from the juvenile detention camp, leaving 80% of our intent to treat group completing the program. This rate is comparable and extends beyond to the retention rate of Biegel et al. (2009; approximately 60%), Samuelson et al. (2007; 69%), and Bowen et al. (2009; 65%). Furthermore, the qualitative data suggests that participants were receptive to the course content in general. This reveals additional evidence toward the feasibility of this intervention.

The results also confirmed the second and third hypotheses: that impulsiveness would significantly decrease from pretest to posttest and that perceived risk of drug use would significantly increase from pretest to posttest. The qualitative data also revealed a theme entitled "learning about drugs." This theme was described as participants having positive learning experiences about drugs. It could be that the positive

learning environments (i.e., in which therapists were not trying to coerce adolescents into stopping substance using behaviors, but rather focusing on creating a safe, therapeutic, and receptive learning environment) left the participants of this study more open to the idea that drugs can be harmful, and thus, perceived risk of drug used significantly increased. The fourth hypothesis was not confirmed: self-regulation did not significantly change from pretest to posttest, although trends were in a psychologically enhancing direction.

The feasibility of the intervention understudy should be considered within the context of the juvenile detention camp setting. As noted above, an initial intent-to-treat sample of 60 participants were recruited, but 12 were not able to complete the intervention. Although this represents an attrition rate of 20%, this should not undermine the feasibility of the intervention. Oftentimes, participants would get released from the juvenile detention camp part-way through the program. Requesting that such participants complete the intervention for the sake of research would be inappropriate and inhumane. Nevertheless, the mindfulness-based substance use intervention understudy here is indicated to be a positive program that high-risk and incarcerated adolescents may be open to and can learn from. This suggests feasibility given that literature on therapies with high-risk and incarcerated adolescents highlights this population's overt resistance to treatment (Baer & Peterson, 2002; Ginsburg, Mann, Rotgers, & Weekes, 2002).

Transformative Transpersonal Psychology

One of the goals for this study was to explicitly position this research and intervention within the framework of transformative-based transpersonal psychology. Given that mindfulness is derived from spiritual traditions (most notably Buddhism), it is important for readers to understand that mindfulness interventions stripped of dogma and spiritual doctrine (such as the intervention in this study) are not facilitated in isolation from the context of the intervention facilitators. The training and qualities of the facilitators is of utmost importance in helping incarcerated adolescents (e.g., Himelstein & Saul, 2011) derive meaning and impact from their experiences. Pioneers in the fields of humanistic and transpersonal psychology have always emphasized therapist qualities that include authenticity and positive regard (e.g., Carl Rogers), present moment self-awareness (e.g., Fritz Pearls), and love (e.g., Abraham Maslow), and it is essential to understand that with the rise of the

evidence-based "epidemic" (i.e., the push to attribute manualized interventions' efficacy on the content of the manual alone with no regard to the facilitators), some important training qualities can be lost. This is why advanced training and supervision is needed in order to effectively implement the mindfulness-based substance use intervention studied in this article.

Limitations and Future Research

Although this study shows promising results, some limitations are worth consideration. First, no control group was used to validate the results from the treatment group. Given the pilot nature of the study (i.e., limited resources) and institutional limitations (i.e., gatekeepers in the juvenile detention facility did not deem a control group feasible because of the nature of how the camp is governed), a control group could not be set up. Because of this, the significant differences that did occur might be due to some factor other than participating in the treatment intervention. Future research should aim to conduct randomized clinical trials in order to decrease threats to internal validity.

Second, only two focus groups assented to being interviewed about their experience with the treatment intervention. If for example, all six cohorts were interviewed, there would have been more data and the themes that were identified might have varied more.

Finally, it is unclear which aspect of the treatment intervention was most helpful in this research. That is, the mechanisms of change in the intervention are not clear and should be isolated and studied in future research. For example, was it the mindfulness meditation training that was most helpful? Or was it the group context? Or the group facilitator? Future research should aim to investigate such mechanisms of change. This was a motivation for pushing another study (currently in the data collection phase) through the institutional review board that is investigating the isolated effects of mindfulness meditation in incarcerated adolescent substance users.

Conclusion

Although there are limitations to this study, the results suggest that the mindfulness-based substance use intervention understudy is a promising intervention for incarcerated substance using adolescents. Importantly, decreased impulsiveness that can result from such a program might enable higher psychological functioning in incarcerated youth. Thus, staff at juvenile detention facilities, policy makers, and mindfulness intervention

experts may consider mindfulness interventions as another possibility for primary or adjunctive treatment with incarcerated and high-risk adolescents dealing with issues of substance abuse and dependence. Randomized clinical designs may assist in establishing mindfulness interventions as empirically validated treatments for juvenile substance users. Continued research in the field of mindfulness may reveal the operative mechanisms that facilitate change within mindfulness-based interventions. Despite that much research remains to be conducted, it is exciting that four decades of empirical research with mindfulness programs suggest that they are feasible treatment approaches in such diverse populations and for numerous issues.

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