Effects of a Mindfulness Group on Latino Adolescent Students: Examining Levels of Perceived Stress, Mindfulness, Self-Compassion, and Psychological Symptoms

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Effects of a Mindfulness Group on Latino Adolescent Students: Examining Levels of Perceived Stress, Mindfulness, Self-Compassion, and Psychological Symptoms

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Stressed Teens

This pilot study evaluated the impact of mindfulness groups on 20 Latino middle school students who participated in 8-session structured groups using the Mindfulness-Based Stress Reduction for Teens curriculum. The participants’ scores on the Mindful Attention Awareness Scale; the Self-Compassion Scale; the Perceived Stress Scale; and the Depression, Anxiety, and Hostility subscales of the Symptom Check List–90–R were examined at 3 points in time. There were no significant changes during the baseline period. Following participation in the groups, the adolescents’ mindfulness and self-compassion scores significantly increased, and their perceived stress and depression significantly decreased.

Keywords: adolescents; groups; Latino; mindfulness

Adolescents face intense stress about academic performance, fitting in, body image issues, dating, and sex (Neff & McGehee, 2010). Several studies have suggested that children feel the negative impacts of stress, resulting in test anxiety, generalized anxiety, anger, violent behavior, and conduct disorders (Feindler, 1995; Ommundsen & Vaglum, 1992; Prins & Hanewald, 1999). The American Psychological Association’s
Stress in America survey concluded that one in five children ages 8–17 worry a lot or a great deal about things in their lives. Stressful life events can lead to negative psychological symptoms. When adolescents are overwhelmed by negative psychological symptoms, they are at risk for developing mental, emotional, and behavioral disorders. In fact, mental, emotional, and behavioral disorders are occurring at alarmingly high rates among adolescents. A report published by the Board on Children, Youth, and Families (BOCYF) in 2009 estimated that between 14% and 20% of young people have mental, emotional and behavioral disorders, resulting in enormous personal, family, and societal costs. A review of three longitudinal studies concluded that close to 40% of young people have had at least one psychiatric disorder by the time they are 16 (Jaffee et al., 2005).

Adding to the stressors experienced by all students, minority adolescents experience stressors resulting from discrimination, classism, lack of basic resources, and violent neighborhoods (Christner & Mennuti, 2009; Cordova & Cervantes, 2010). In particular, the rapidly growing population of Latino youth often experience poverty, racism, classism and prejudice in the United States (Cervantes & Cordova, 2011). Cervantes and Cordova studied Latino adolescents in both the northeastern and southwestern United States. They identified the following specific stressors faced by Latino adolescents: communication and language barriers; family stress including intergenerational cultural differences; stress from being caregivers to younger sibling; perceived discrimination; and peer stress including drugs, gangs and neighborhood violence. Social discrimination has been significantly related to Latino youths’ reports of depressive symptoms (Behnke, Plunkett, Sands, & Bamaca-Colbert, 2011). Studies have also shown that Latino youth, particularly girls, have the highest rates of depressive symptoms of any ethnic group (Eaton et al., 2006).

Mindfulness Interventions

Researchers who have been looking for ways to reduce the occurrence of negative psychological symptoms have identified mindfulness training as a promising preventive intervention (Brown, Ryan, & Creswell, 2007). Mindfulness is a concept rooted in Buddhist psychology that focuses on activities of consciousness, including attention and awareness (Kabat-Zinn, 1994). Mindfulness intervention studies have become much more prevalent in the last decade, and the empirical research supports the role of mindfulness in well-being (Burke, 2010). Brown et al. (2007) reviewed studies done on mindfulness interventions and noted that randomized clinical trials of Mindfulness-Based Stress Reduction (MBSR) programs developed by Kabat-Zinn...
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(1994) were shown to be effective in reducing self-reported distress (Astin, 1997; Monti et al., 2005; Tacon, McComb, Caldera, & Randolph, 2003; Williams, Kolar, Reger, & Pearson, 2001), stress symptoms, and mood disturbance (Speca, Carlson, Goodey, & Angen, 2000). MBSR programs also have been shown to increase affect regulation (Siegal, 2007; Tacon et al., 2003), perceptions of control (Astin, 1997), and trait mindfulness (Cohen-Katz, Wiley, Capuano, Baker, & Shapiro, 2005). Tang et al. (2007) have suggested that short-term meditation training improves attention and self-regulation. Higher levels of mindfulness have been associated with less reactivity to threatening emotional stimuli, stronger affect regulatory tendencies, greater awareness, understanding and acceptance of emotions, and a greater ability to correct or repair unpleasant mood states (Brown, 2007).

There also is evidence that mindfulness helps in behavioral regulation and minimizes impulsive, habitual reactions (Bishop et al., 2004; Ryan & Deci, 2004). In addition to all of these benefits, mindfulness also has been shown to support more effective goal attainment. Brown and Vansteenkiste (2006) suggested that mindfulness was related to better academic and personal goal outcomes among college students. Mindfulness appears to impact the quality of interpersonal relationships, as well. Brown and Ryan (2003) and Baer, Smith, and Allen (2004) found correlations between components of emotional intelligence and mindfulness, and mindfulness was positively associated with relatedness and interpersonal closeness. Evidence also has suggested that a mindful stance is related to higher levels of compassion for self (Neff, 2003a; Shapiro, Brown, & Biegel, 2007) and empathy for others (Beitel, Ferrer, & Cecero, 2005; Siegel, 2007). Self-compassion is emerging as an important construct as a study conducted by Neff and McGehee (2010) with 235 adolescents in a large southwestern city showed that higher levels of self-compassion were associated with well-being, and that self-compassion had a significant negative correlation with depression and anxiety. As has been the case with many mindfulness studies, the participants in this study were predominantly Caucasian (80%) and middle class.

Components of mindfulness are being incorporated into many current empirically supported treatments for adolescents, including Dialectical Behavior Therapy (DBT), Mindfulness-Based Cognitive Therapy (MBCT), and Acceptance and Commitment Therapy (ACT; Christner & Mennuti, 2009). These treatment approaches are known as third-wave cognitive behavioral therapies (CBT; Hayes, 2004). Instead of focusing on changing the content of private experiences, third-wave CBTs focus on changing adolescents’ relationship to their thoughts and feelings, including having more acceptance and self-compassion (Hayes, 2004).
Mindfulness Interventions for Adolescents

Studies on Mindfulness Based Cognitive Therapy (MBCT) have shown promising results for adolescents. Lee, Semple, Rosa, and Miller (2008) used the MBCT manualized intervention with a primarily minority sample of children (n = 25). Results showed significant reduction in internalizing and externalizing problems on the Child Behavior Checklist for students who completed the treatment. Zylowska et al. (2008) studied the effects of meditation training on adults and adolescents with ADHD. There were significant improvements in ADHD self-reported symptoms, with 18 of the 23 participants reporting reduction in total ADHD symptoms. Seven participants reported at least a 30% reduction in their total symptoms. Another study was conducted by Bogels, Hoogstad, Van Dun, De Schutter, and Restifo (2008) on mindfulness training for 14 adolescents with externalizing disorders such as ADHD, Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and Autism Spectrum Disorder (ASD). From pretest to posttest, significant improvement was shown on the Youth Self Report (YSR) measures of externalizing symptoms, internalizing symptoms and attention, and on the YSR total score. Significant improvements were also found on subjective happiness and mindful awareness measures, and on the Goal Attainment Scale (GAS) for the children and their parents.

While these programs have components of mindfulness interventions, studies on programs based solely on mindfulness practices are just emerging. The most methodologically sound study done to date on the use of MBSR with adolescents was conducted by Biegel, Brown, Shapiro, and Schubert (2009). This study focused on 102 adolescents, age 14–18, currently or previously under care at an outpatient psychiatric facility. The authors created a manualized intervention for adolescents modeled very closely after Kabat-Zinn’s (1994) adult MBSR intervention. Results showed that relative to Treatment as Usual (TAU) controls, MBSR participants showed significant improvements over time in state and trait anxiety, perceived stress, self-esteem, and the following Hopkins Checklist 90 subscales: Somatic, Obsessive-Compulsive, Interpersonal Sensitivity, and Depressive Symptoms. Additionally, at follow-up, significant improvements were found on all of these outcomes for MBSR participants compared to controls (with the largest effect sizes for a reduction in Obsessive-Compulsive and Depressive symptoms). MBSR participants were much more likely than participants receiving TAU to show diagnostic improvement over the course of the study, with 21 (54%) of MBSR completers showing diagnostic improvement whereas only 1 (2.2%) of the patients receiving TAU showed diagnostic improvement. In this sample 38% of the participants were Latino.
Mindfulness training is often offered in group settings (Biegel et al., 2009; Burke, 2010, Kabat-Zinn, 1994; Newsome, Waldo, & Gruszka, 2012). An argument can be made that groups are a particularly appropriate format for involving Latino adolescents in mindfulness. In addition to efficiently serving more adolescents per counselor than is possible with individual training, group training may have an advantage of being a familiar format for adolescents, like classes or team sports, compared to individual counseling which may feel foreign and potentially stigmatizing (Waldo, Schwartz, Horne, & Cote, 2010). Involvement with peers can be compelling for adolescents and membership in a group may help fulfill adolescents’ motivation for positive peer relationships (Hershenson, Power, & Waldo, 1996). Group training may be particularly appealing to Latino youth because working within groups may be experienced as congruent with the collectivistic worldview which is more of a cultural norm in the Latino communities (Arrendondo & Perez, 2003).

Perhaps most importantly, there is evidence that groups generate therapeutic factors (Yalom & Leszcz, 2005) that could help adolescents develop mindfulness and deal with stress. It has been suggested (Waldo, 1985) that therapeutic factors may be fostered by group dynamics (Bion, 1959) that develop in stages over the course of group counseling interventions (Tuckman & Jensen, 1977). Table 1 provides some examples of therapeutic factors that could be generated during a sequence of mindfulness group meetings that might contribute to adolescents’ development. Given the potential efficiency, developmental and cultural relevance, and contribution of therapeutic factors, group seems like a preferred approach to offering mindfulness training to adolescents.

**Purpose of the Study**

To date, most of the mindfulness literature has focused on adult populations. The majority of the mindfulness intervention studies with adolescents have focused on primarily Caucasian female participants. In a review of current mindfulness intervention studies with adolescents and children, Burke (2010) noted that another major problem with the current studies on mindfulness interventions with adolescents is that “there were many variations from the standard MBSR/MBCT core curriculum, some interventions using “elements” of MBSR (p. 135). This makes it difficult to replicate the procedures in future research or to know which elements of the intervention were responsible for change.

While some work has been done, it is not known if an MBSR group intervention will be well received and effective with Latino
Table 1 Examples of Potential Therapeutic Factors Generated in an Adolescent Mindfulness Group

**Universality:** Through a discussion of the stressors, adolescents could recognize they face common problems, decreasing feelings of isolation (an important element to self-compassion).

**Instillation of Hope:** Hearing how mindfulness can help, and seeing other members make progress could increase adolescents’ confidence that mindfulness could help them and inspire them to learn more about mindfulness.

**Catharsis:** Group participation could help adolescents access and express difficult emotions, and allow them to try approaching those emotions in a mindfully self-compassionate manner.

**Family Re-enactment:** The group structure could remind adolescents of a family, with the leaders in authoritative parental roles and the other members being like siblings. Adolescents could experience the group as responding effectively to strong emotions through mindfulness, which might not occur in their families of origin.

**Cohesion:** The adolescents might experience acceptance and belonging that may improve their self-concepts, and increase their willingness to participate in group mindfulness activities.

**Altruism:** Group members help each other learn mindfulness. Helping others could reduce adolescents’ focus on their own problems, raise their self-esteem, and make it more likely they will themselves employ the mindfulness procedures that they are suggesting to other members.

**Interpersonal Learning:** The relationships adolescents develop in groups can mirror their relationships in their daily lives. In the group, they can get feedback on how they are relating to other group members, and if they want to change how they are relating, they can get suggestions on how to use mindfulness principles to improve their relationships.

**Acquiring Information:** Members gain mindful information from leaders and members.

**Modeling:** Learn by watching the leaders and other members practice mindfulness.

**Socializing Techniques:** Adolescents have the opportunity to experiment at practicing mindfulness, and to get feedback from the leaders and other members on their progress.

**Existential Factors:** Mindfulness activities include encouraging awareness and acceptance of experience, recognition of choices and assuming responsibility.

This pilot study was designed to help determine if efforts to help Latino adolescents learn skills to increase mindfulness would increase their mindfulness and self-compassion, and decrease stress and negative psychological symptoms. This study included male and female group members. The study focused on Latino students in an effort to provide information on how mindfulness interventions can help minority populations that may be exposed to additional stressors because of poverty, racism, and classism. The treatment group followed Biegel’s Mindfulness-Based Stress Reduction for Teens treatment approach (Biegel, 2010), which has been shown to be effective with adolescents (Biegel, et al, 2009). It was anticipated that through participation in mindfulness groups, students would improve their
levels of mindfulness and self-compassion, and decrease their levels of perceived stress and psychological symptoms including depression, anxiety, and hostility. This study was approved to be conducted with human participants by the university’s Institutional Research Board.

METHODS

Design

A quasi-experimental, extended baseline, repeated measures design (Campbell & Stanley, 1977) was used in this pilot study. The study questionnaires were administered three times, as follows: (a) Time 1: Pre-Pretest, (b) Time 2: Pretest, and (c) Time 3: Posttest. The pre-pretest occurred two weeks before the pretest. The pretest was conducted when the group began. The posttest was conducted eight weeks after the pretest, at the conclusion of the eight session groups. Seven different eight-session groups were conducted over a 15-month period.

Participants

Participants were recruited through School Based Health Centers (SBHC) and an after school program at four schools in a rural area of a southwestern state. Students were referred to the SBHC by their teachers, administrators, social workers, school counselors, therapists, and parents. The after school program was part of an initiative in the state which supports programs at schools that have high dropout rates, issues related to poverty, high levels of parental unemployment, and access challenges in rural areas. Students from the SBHC and after school program were asked if they were interested in attending a stress reduction group, and for those who were, informed consent was obtained by the schools from the students and their guardians before the group began. Students had the choice of whether they would allow the personal data they provided to participate in the group to be used anonymously for research purposes. There was no penalty for students who did not allow their data to be analyzed for research. Students who had psychiatric disorders or neurological problems that could severely limit their participation in group were not admitted to the groups. They received individual counseling services. A total of 30 students initially participated in the eight groups, with groups sizes ranging from 2 to 6 students. Participants ranged in age from 12–17. Only 24 participants completed all the group sessions and measures, of which 20 were Latino students. Because so little mindfulness research has focused on Latino students, for the purpose of this study, data were analyzed
for the 20 Latino students (8 male, 12 female) who participated in the groups, completed all of the questionnaires and agreed to allow their answer to be analyzed for research. All of the participants spoke English.

**Instrumentation**

The Mindful Attention Awareness Scale (MAAS) was developed by Brown and Ryan (2003) to assess individual differences in the frequency of mindful states over time. The 15-item self-report instrument focuses on assessing the presence or absence of attention to and awareness of what is occurring in the present moment. A sample item is, “I find it difficult to stay focused on what’s happening in the present.” Participants respond to each item using a 6-point scale ranging from 1 (*almost always*) to 6 (*almost never*). Scores are determined by summing all items and dividing by the number of items. Thus, the range of scores is from 1 to 6. Internal consistency levels for the MAAS (Cronbach’s alphas) generally range from .80 to .90. The MAAS has been found to have negative correlations with the Beck Depression Inventory ($r = -.41, \ p < .0001$) and the State-Trait Anxiety Inventory ($r = -.40, \ p < .0001$) (Brown & Ryan, 2003). A MAAS–A scale was recently developed for adolescents by omitting one item about driving from the original scale (Brown, West, Loverich, & Biegel, 2011). This new scale was examined in a sample of 131 adolescents over a three- to four- week period. Internal consistency of the scale was high at both Time 1 (α = .85) and Time 2 (α = .88). Significant correlations with a variety of indicators of well-being and adaptive functioning suggest that the MAAS is a valid measure of mindfulness. While there are no norms for the MAAS, Brown et al. (2011) studied adolescent participants from Midwestern public schools ($n = 131$), which yielded the following means and standard deviations: male adolescents ($M = 3.72, SD = .74$) and female adolescents ($M = 3.72, SD = .75$). The majority of participants in the study identified as Caucasian (89.1%). Reliability, validity and normative data are not available for Latino adolescents on this measure. For this study the MAAS–A was used.

The Self-Compassion Scale (SCS; Neff, 2003a) is a 26-item self-report measure that yields an overall SCS score and six subscale scores. The scale measures three main components of self compassion, as follows: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification. A sample item is, “When I’m feeling down I tend to obsess and fixate on everything that’s wrong.” Participants respond to each item using a 5-point scale ranging from 1 (*almost never*) to 5 (*almost always*). The total score is
an average of all the items such that scores can range from 1 to 5. Neff and McGehee (2010) noted that internal consistency reliability for the overall SCS score has ranged from .90–.95 for adults and was .90 for adolescents. Evidence for the validity of the SCS includes a significant negative correlation with the Self-Criticism subscale of the Depressive Experiences Questionnaire (\(r = -.65, p < .01\)), a significant positive correlation with the Social Connectedness scale (\(r = .41, p < .01\)), and significant positive correlations with all three subscales of the Trait-Meta Mood Scale: Attention, \(r = .11, p < .05\), Clarity, \(r = .43, p < .01\), and Repair, \(r = .55, p < .01\) (Neff, 2003a). Additionally, the SCS showed significant negative correlations with the Beck Depression Inventory (\(r = -.51, p < .01\)) and the Speilberger Trait Anxiety Inventory (\(r = -.65, p < .01\)) (Neff, 2003a). The SCS was used with a sample of 235 adolescent students in a southwestern city, yielding the following results: \(M = 2.97, SD = .62\) (Neff & McGehee, 2010).

The Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1983) is a 10-item self-report instrument used to assess the extent to which an individual appraises life events as stressful during the last month. A sample item is, “In the last month, how often have you felt nervous and stressed?” The scale was designed for use in community samples with at least a junior high education. Participants respond to each item using a 5-point scale ranging from 0 (never) to 4 (very often). Item responses for each participant are summed after reverse scoring four items, yielding a total score of perceived stress ranging from 0 to 40. Coefficient alpha reliability coefficients for the PSS were .84, .85, and .86 in each of the three samples (Cohen et al., 1983). The PSS was correlated with life-event scales, depressive and physical symptoms, social anxiety, and the use of health services (Cohen et al.). In a study of 2387 respondents, the revised PSS correlated moderately well with other stress measures, such as a life events scales (\(r = .32, p < .001\)) and self-reported physical illness (\(r = .22, p < .002\)). The revised PSS was normed on a sample with a total \(N\) of 2387; \(M = 13.02, SD = 6.35\) (Cohen et al). Reliability, validity and normative data are not available for Latino adolescents on this measure.

The Symptom Check List–90–R (SCL–90–R; Derogatis, 1994), a 90-item self-report measurement, has clients rate the level of distress they are experiencing related to different psychological symptoms. The SCL–90–R generates scores on nine subscales: paranoid ideation, interpersonal sensitivity, hostility, psychoticism, phobic anxiety, anxiety, somatization, obsessive-compulsive, and depression. Subscale scores are converted to T-scores which range from 30–80 with a mean of 50. Measures of factor internal consistency (alpha coefficients) range from .77 (Psychoticism) to .90 (Depression), and test-retest
(1-week apart) correlation coefficients range from .78 (Hostility) to .90 (Phobic Anxiety; Payne, 1985). SCL–90–R subscales have shown high convergent validity with similar scales on the Minnesota Multiphasic Personality Inventory (MMPI) and high construct validity (Payne, 1985). Norms for the instrument are available for adolescent non-patients (ages 13–19, 327 male, 479 female; Pauker, 1985). There is evidence suggesting the SCL–90–R is a reliable and valid measure of symptoms for English speaking Latino clients (Martinez, Stillerman, & Waldo, 2005). The Depression, Hostility, and Anxiety scales of the SCL–90–R were used in this study.

The MAAS–A, the SCS, the PSS, and three scales from the SCL–90–R were administered to the adolescent participants prior to entering the mindfulness groups (Time 1), when starting the groups (Time 2), and at the conclusion of the groups (Time 3).

**Intervention**

The intervention followed the manualized curriculum created by Gina Biegel entitled Mindfulness-Based Stress Reduction for Teens (MBSR–T; Biegel, 2010; Biegel et al, 2009). Biegel adapted Kabat-Zinn’s (1994) MBSR program for adults to be more applicable for adolescents. MBSR–T groups consist of eight weekly 50-min meetings. The groups were facilitated by two psychologists, a counseling psychology doctoral student, and two master’s level counselors. Two of the leaders were Latino and three were Caucasian. The group leaders had been active in meditation practices including sitting meditation and yoga, and had attended mindfulness trainings. All group leaders except one participated in online training by Biegel entitled “Introduction to Mindfulness for Professionals Working with Teens.” A psychologist who had had mindfulness training in other settings co-facilitated one group with a leader who participated in the on-line training. The training covered Biegel’s manual for running the group. Biegel, who was trained as an MBSR teacher, acted as a consultant on the project. Group leaders had the opportunity to consult with her over the phone to gain ideas and feedback on the groups.

The groups included experiential mindfulness practices such as body scan meditation, sitting meditation, hatha yoga, and walking meditation. The groups also included didactic presentations, group sharing of related experience, and instruction in at-home mindfulness practice assignments. Students were encouraged to do at-home mindfulness practices 25 to 30 min daily. All group members received handout and workbook pages to reinforce instruction. A CD developed by Biegel was given to students to help with their at-home practice.

The following eight group sessions were offered (Biegel, 2010; Biegel et al., 2009):
1. **Examining Stress and an Introduction to Mindfulness.** This session examined stress, including emotional and physical symptoms associated with stress; exploration of the stressors the students were facing; and discussion of stressors adolescents typically face (e.g., peer pressure, relationships and school). This first group meeting also included an introduction to mindfulness, including an exercise to come to awareness through the five senses.

2. **Foundations of Mindfulness.** This session set the foundation for mindfulness, including offering definitions and explaining what a mindful attitude is (e.g. nonjudging, nonstriving, acceptance, etc). A mind-body connection exercise was done during which the students described a situation they recently encountered, and identified their thoughts, feelings, and physical reactions in that situation.

3. **Working With What Is.** This session began with The Guest House poem and the importance of letting all of one’s emotions be a part of one’s experience. The students explored how they currently manage negative emotions and how managing them mindfully could clear their minds. Emotions were also addressed through the use of a wave metaphor and encouraging students to access the calm that is always present beneath the surface.

4. **Cultivating Self-Care and Awareness of Positive Experience.** This session began with a walking meditation and then focused on cultivating self-care and awareness of positive experiences. Students were encouraged to identify pleasant life moments and what they were experiencing at that time. The students were encouraged to write down activities they enjoy, plan to do one to two of these activities per week, and to keep a log in a Pleasant Events calendar. Definitions of self-care were discussed and students were asked to identify ways they can take care of themselves.

5. **Working with Thoughts and Unpleasant Events.** This session offered students the tools to work with unpleasant thoughts and events. An Unpleasant Events calendar was used to help students learn how to reduce negative self-judgments around unpleasant events. Mindful redirection techniques were taught as students stopped, gained awareness of their bodies, practiced deep breathing, and then revisited the stressful situation.

6. **Coping Strategies, Letting Go, and Forgiveness.** This session focused on developing coping strategies, learning to let go, and engaging in forgiveness. Through breathing meditation instruction students were taught how to reconnect with their breath in order to relax. Group discussions covered helpful and unhelpful ways to cope with stress. An exercise on trying not to block painful emotions was also conducted to help teach students that working through painful experiences is a healthy way to achieve psychological well-being.

7. **Building Mindful Resilience.** This session focused on developing resilience through mindfulness. The students completed a “My Purpose” exercise identifying what is important to them and what they dream of doing. The students also completed an exercise identifying their positive qualities.

8. **Review and Intentions for the Future.** This session served to summarize all that the students had learned. Additionally, students identified 10 activities that nourish them, 10 activities that drain them, and set three short-term and three long-term goals to enhance their well-being.
RESULTS

Results of the change scores for the MAAS–A, the SCS, PSS, and the Depression, Anxiety, and Hostility subscales of the SCL–90–R are presented below. One-tailed correlated t-tests with alpha levels set at .10 were used to determine if there were significant changes in the measures during the two-week baseline period before the intervention began. One-tailed correlated t-tests were also used to assess if significant changes occurred in the measures following the mindfulness group. The more liberal .10 alpha level was used to determine significance because of concerns that this pilot study’s small sample size and brief baseline and intervention periods might result in type II error (i.e., failure to statistically detect real differences in the measures over time).

Table 2 provides the means and standard deviations from the pre-pretest, pretest and posttest scores on the six scales employed in this study, as well as the correlated t-test comparisons for the six measures between the pre-pretest and pretest scores, and pretest and posttest scores. There were no significant changes between pre-pretest and pretest scores prior to the mindfulness group intervention on any of the measures. This finding suggests that no significant changes in mindfulness, self-compassion, perceived stress, depression, anxiety or hostility occurred for participants prior the start of the mindfulness group.

In contrast, results showed there were increases in students’ Mindful Attention Awareness Scale scores following the mindfulness group intervention (mean change = .32, t = 1.39, p < .10). Students also reported increases on the Self-Compassion Scale following the group (mean change = .26, t = 2.15, p < .05). The group intervention also produced significant reductions in students’ scores on the Perceived Stress Scale (mean change = −3.1, t = 1.82, p < .05) and the Depression scale of the SCL–90–R (mean change = −3.55, t = 1.82, p < .05). The reductions in students’ scores on the SCL–90–R Hostility (mean change = −.26) and Anxiety (mean change = −.99) scales of the SCL–90–R were not significant.

DISCUSSION

Lack of change in the dependent measures during the two-week baseline period before the start of the mindfulness groups suggests that the adolescents’ levels of mindfulness, self-compassion and stress were stable prior to the intervention. The relatively short two-week baseline period was employed because the researchers did not want to
Table 2  Correlated $t$-Test Assessment of Changes in Dependent Measures

<table>
<thead>
<tr>
<th></th>
<th>Pre-pretest</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Pre-pretest to Pretest</th>
<th>Pretest to Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>Mean Change</td>
<td>t</td>
</tr>
<tr>
<td>Mindful Attention Awareness</td>
<td>3.28 (1.02)</td>
<td>3.24 (1.29)</td>
<td>3.56 (.96)</td>
<td>.04</td>
<td>.16</td>
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<tr>
<td>Scale (MAAS–A)</td>
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<tr>
<td>Self-Compassion Scale (SCS)</td>
<td>2.83 (.38)</td>
<td>2.75 (.45)</td>
<td>3.01 (.38)</td>
<td>-.08</td>
<td>.73</td>
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<tr>
<td>Perceived Stress Scale (PSS)</td>
<td>23.20 (7.15)</td>
<td>21.70 (5.70)</td>
<td>18.60 (4.81)</td>
<td>-1.50</td>
<td>.84</td>
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<tr>
<td>Symptom Check List 90 Revised</td>
<td></td>
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<tr>
<td>(SCL–90–R) Scales</td>
<td></td>
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<tr>
<td>Depression</td>
<td>61.00 (12.13)</td>
<td>60.70 (12.23)</td>
<td>57.15 (9.51)</td>
<td>-.30</td>
<td>.19</td>
</tr>
<tr>
<td>Hostility</td>
<td>60.10 (11.48)</td>
<td>58.05 (12.81)</td>
<td>57.45 (8.94)</td>
<td>-2.05</td>
<td>1.22</td>
</tr>
<tr>
<td>Anxiety</td>
<td>61.50 (10.34)</td>
<td>61.15 (13.59)</td>
<td>58.85 (9.26)</td>
<td>-.35</td>
<td>.14</td>
</tr>
</tbody>
</table>

Notes: $n = 20$. MAAS–A scores can range from 1 to 6. SCS scores can range from 1 to 5. PSS scores can range from 0 to 40. SCL–90–R scores can range from 30 to 80.

*p < .10, **p < .05.
delay participation in the groups by extending the baseline. Repeated measures one-tailed t-tests with probability levels set at .10 were used to increase the likelihood of detecting significant changes in the measures during the baseline period. The lack of significant changes suggests these variables would not have improved without intervention.

The significant (p < .10) increase in participants’ levels of mindfulness following the group is a critical finding. The adolescents improved their abilities to be present and aware of experiences and emotions as they were happening. Higher scores on the Mindful Attention Awareness Scale (MAAS) have been associated with less reactivity to threatening emotional stimuli; stronger affect regulatory tendencies; greater awareness, understanding and acceptance of emotions; and a greater ability to correct or repair unpleasant mood states (Brown et al., 2007). Improvements in participants’ MAAS scores in this pilot study suggests that the group was effective at providing mindfulness training, that the training increased Latino adolescents’ mindfulness, and that improvement in mindfulness could have contributed to the adolescents’ increased self compassion and reduced symptoms of stress.

The significant (p < .05) increase in participants’ self compassion following the mindfulness groups is a second critical finding. Self-compassion is deeply rooted in mindfulness practices. Students’ improvements in self-compassion suggest that the group helped them to see their difficulties from a more compassionate, balanced perspective, without imposing negative self-criticism. Overall well-being and mental health have been associated with higher levels of self-compassion in adolescent students (Neff & McGehee, 2010). Neff (2003b) suggested that a compassionate attitude toward oneself requires a mindfulness mental perspective. Meditation practice has been associated with improved capacity for empathy and compassion in other populations (Siegel, 2007). This study suggests that learning mindfulness practices increased Latino adolescents’ levels of self-compassion, which in turn could reduce their levels of stress. Participants’ levels of stress did decrease. Their scores on the PSS and Depression subscale of the SCL–90–R dropped significantly (p < .05) following the group. Siegel (2007) suggested that meditation teaches people to respond to life rather than merely react, and that mindfulness creates more balanced emotional states in general. Siegel also suggested that meditation practice tends to change a person’s baseline state from “withdraw” to “approach,” and that people who meditate tend to engage more with life’s problems rather than retreating or withdrawing. It could be that the adolescents benefited from the mindfulness group by actively engaging with all of their emotional problems and being able to become observers of their emotions rather than being swept away by them. Learning mindfulness practices might
have allowed the adolescents a different way to look at their life problems, and therefore appraise events as less stressful. Previous research has shown that Mindfulness Based Stress Reduction is effective at reducing stress for adults (Burke, 2010; Brown et al., 2007). The results of this study suggest that Latino adolescent participants enjoyed the same results regarding perceived stress and depression. The reductions in anxiety and hostility experienced by adolescents following the mindfulness group in this study did not reach statistical significance. This may be because reductions in these symptoms require more prolonged practice of mindfulness. The small sample employed in this study may also have contributed to the failure to detect significant reductions in these symptoms.

**Limitations**

Limitations in the design and implementation of this pilot study necessitate caution when generalizing the results. Threats to the internal validity of the extended baseline quasi-experimental design used in this study include maturation (the participants changing independent of the effect of the group), history (external events causing the observed changes, e.g., students receiving individual counseling in addition to participating in the groups), testing (repeated administration of the measures affecting participants’ responses), and mortality (participants who were not benefiting from the group dropping out of the study; Campbell & Stanley, 1977). The validity threats are increased by the relatively brief baseline period (two weeks) compared to the intervention period (eight weeks). These threats could be ameliorated through use of a true experimental design with a randomly assigned control group in future research. The study could also be improved through use of measures that have been normed on Latino adolescents. Self report measures were used in this study. Future research might include behavioral measures, such as attendance, disciplinary, and academic achievement data. Information from behavioral measures could corroborate self report measures, and be useful in demonstrating the clinical significance of the students’ progress. This study’s statistical power for detecting significant results was limited by the small number of participants ($n = 20$). While small sample sizes are not uncommon in mindfulness intervention studies (e.g., Lee et al., 2008, Zylowska et al., 2008), including more participants could improve the statistical power of future studies. Lastly, future research could examine the impact of group dynamics on mindfulness training, including examining participants’ experience of therapeutic factors, and the processes and outcomes of individual and group approaches to mindfulness training.
Implications for Practitioners and Future Research

Despite its limitations, results from this pilot study are promising regarding the potential benefits of mindfulness groups for Latino adolescents in school settings. Financial, geographic, and cultural influences may limit many Latino students’ access to psychological services. Mindfulness groups in schools can overcome these limitations. Mindfulness groups can be offered to all students in schools. The groups are brief, economical, structured, strengths-based, preventative interventions that fit well in educational settings as they empower students. Latino students showed increases in mindfulness and self-compassion following participation in mindfulness groups. Those gains were associated with reductions in stress. There is reason to believe that these improvements could help prevent future psychological problems. Given these potential benefits, it seems worthwhile to explore effective methods for expanding provision of mindfulness groups in schools. For example, mindfulness groups could be offered by school counselors, teachers, and/or paraprofessional volunteers. The groups could be offered in after school programs, in health education or life skills courses, and/or as part of home room activities at the beginning of each school day. Students’ attendance in the groups could be encouraged and documented. Mindfulness homework could be assigned in classes, and checked by teachers and/or parents. Mindfulness groups could also be organized for teachers and administrators in the schools. Finally, mindfulness groups could be offered in schools to students’ parents, guardians and siblings. Given the potential benefits of mindfulness for stress reduction, exploration of these and other options seems warranted.

Conclusion

As the demand for mental health services for adolescents increases, mindfulness-based groups in school settings appear to be a good choice for an intervention with Latino youth to decrease suffering, given their versatility and usefulness for a wide variety of adolescents and their concerns. In this study a mindfulness group decreased depressive symptoms and perceived stress. Mindfulness-based groups are also a preventative intervention as they enhance well-being. In this study the participants were able to significantly increase their levels of self-compassion. The use of mindfulness-based groups will likely only increase as more empirical evidence is gathered on the efficacy of such groups.
REFERENCES


