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ORIGINAL ARTICLE

Leveraging After-School Programs to Minimize Risks for Internalizing Symptoms Among Urban Youth: Weaving Together Music Education and Social Development

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Abstract This study examined a university-community partnership, focusing on mental health promotion within an after-school music program. We pursued two goals: (a) supporting staff around student engagement and behavior management; (b) integrating social-emotional activities into the curriculum. We assessed youth's mental health needs and examined feasibility of social-emotional activities delivered. One-hundred sixty-two youth participated in activities, while a subset of youth ($n = 61$) and their parents provided information on mental health need. Rates of anxiety and depression symptoms were high, and youth reported high satisfaction with the activities. Results suggest promise of this model for mental health promotion for urban youth.

Keywords Mental health promotion · After-school · Anxiety · Depression

Introduction

After-school programs offer a promising avenue for building resilience and promoting mental health among vulnerable youth (Frazier et al. 2007). Fifteen percent (8.4 million) of U.S. children participate in after-school programs, with higher rates of participation for African American (24 %) and Hispanic (21 %) children (Afterschool Alliance 2009). Participating in structured after-school programs predicts improvement in school attendance, test scores and grades, and health and safety, and gains are highest for youth at risk for negative outcomes (Afterschool Alliance 2013; Posner and Vandell 1994). These benefits are strongest for high-quality programs (i.e., programs are sequential, active, focused, and offer explicit skills-building activities; Durlak et al. 2010) that emphasize character development and social skills (Gottfredson et al. 2004).

Strategically integrating mental health promoting skills that directly target mechanisms of action (i.e., processes responsible for change in behavior) into children's natural activities holds several advantages over more conventional school-based prevention and intervention. First, leveraging after school time may enhance reach, including youth with unidentified mental health need, underlying vulnerabilities, and early symptoms. Second, school-based service models typically involve pulling students from their classrooms for individual or group-based intervention (Foster et al. 2005), resulting in lost instructional time and potential stigma. After school mental health promotion minimizes interference with academic progress, which itself serves as a protective factor for youth in economically disadvantaged communities. Third, after school goals align well with mental health promotion, and recreational activities inherently offer opportunities for social-emotional skills building (Frazier et al. 2007).

Rich data over many years has highlighted the contribution of music education to children's development in auditory processing and attention (Kraus et al. 2012; Strait et al. 2010) and in reading skills (Tierney and Kraus 2013), as early as infancy (Siu and Cheung 2015), with growing benefits as children become older and more skilled (Kraus et al. 2014). Among the many types of activities in which youth participate after school, music education is particularly well-suited for mental health promotion. Music education, when offered in a group format such as choir, band,

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or orchestra, emphasizes teamwork, cooperation, and artistic understanding and expression, making music an ideal medium for developing skills such as insight, communication, and problem solving. Further, because many musical pieces are meant to express or invoke particular emotional experiences (e.g., Juslin et al. 2010), music is particularly well-positioned for building emotional understanding and developing capacity for emotion regulation, skills necessary for promoting mental health and preventing anxiety and depression in particular. Partnerships with music education after-school programs may serve as an ideal setting to mitigate risks for internalizing problems and build resilience among urban youth.

Urban Youth Exhibit High Rates of Internalizing Problems

Anxiety and depressive disorders are highly prevalent in childhood, with rates hovering around 10 % based on national surveys (Costello et al. 2003). Prevalence is even higher among ethnic minority youth and youth living in poverty (Silverman et al. 1995; Storch et al. 2003; Van Voorhees et al. 2008). Symptoms are accompanied by impairment in interpersonal and school functioning (Costello et al. 1996), and left unaddressed, often result in later anxiety, depression, and substance use problems (Cole et al. 1998; Copeland et al. 2009; Moffitt et al. 2007; Pine et al. 1998), that contribute to further occupational and interpersonal impairment (Barrera and Norton 2009; Lépine 2001). The burden to society of anxiety and depression is enormous, with depressive disorders ranking first in terms of the number of life years lost to or lived with disability (Costello et al. 2005). The scope of these problems and their long-term consequences urge us to consider the cost-efficiency of mitigating risks, promoting positive mental health, and preventing anxiety and depression *before they occur*. We propose that after-school programs are well positioned to support these goals via social-emotional skills targeting underlying processes for youth with or at risk for internalizing problems. This paper presents a model for integrating emotion regulation skills into after school music programming to mitigate risk for anxiety and depression among vulnerable youth.

Emotion Regulation Deficits are Associated with Youth Anxiety and Depression

Youth anxiety and depression are characterized by deficits in emotional awareness and emotional regulatory strategies, including cognitive reappraisal (ability to reinterpret a situation to change its emotional impact), emotional suppression (ability to inhibit emotional expression), and emotion dysregulation (poorly modulated emotional responses) (Betts et al. 2009; Garnefski et al. 2002; Suveg et al. 2009; Zeman et al. 2002). Children with internalizing problems have more difficulty reappraising a situation and are more likely to suppress emotions compared to children without symptoms (Betts et al. 2009; Carthy et al. 2010; Legerstee et al. 2010). Fortunately, emotion regulation deficits are amenable to intervention, and improvements in emotion regulation skills relate to symptom improvement (e.g., Beauregard 2007; Gortner et al. 2006; Kaufman et al. 2005; Kendall and Treadwell 2007; Moscovitch et al. 2011; Muris et al. 2009; Reinecke et al. 2013; Shirk et al. 2013).

Although research to date indicates that difficulties with emotion regulation are correlates—but not necessarily causes—of anxiety and depression (reflecting a need for longitudinal studies), evidence that deficits are amenable to intervention suggests the potential utility of including emotion-focused components in prevention programming to mitigate risk for internalizing problems. Indeed, children receiving emotion-focused prevention programming have shown decreased negative emotional expression (Izard et al. 2004). In fact, social-emotional skills such as problem solving and cognitive reappraisal have been identified as common elements not only of anxiety and depression prevention but also of programs focused on preventing other outcomes such as substance use and promoting more broad and general life skills (Boustani et al. 2015). Further, these emotion-focused components have been implemented not only in selective preventive interventions but also in universal programs designed to promote good mental health and prevent anxiety and depressive symptoms among all youth in a setting (e.g., Lock and Barrett 2003), highlighting their potential for reducing *symptoms* for youth who are already exhibiting them, and reducing *risk* among youth who are not.

Prevention of Childhood Emotional Disorders

Several effective preventive interventions have been developed to reduce risk for anxiety and depression (see reviews, Cuijpers et al. 2008; Fisak et al. 2011). As mentioned above, the most heavily studied and widely cited programs share common ingredients designed to influence the emotion-focused mechanisms of action, including problem solving, cognitive reappraisal, changing negative thought patterns, and decreasing the avoidance of anxiety-provoking stimuli and negative emotional states (e.g., Ehrenreich-May and Bilek 2011).

Many prevention programs have been designed for schools (e.g., Barrett et al. 2006; O'Kearney et al. 2009), but competing priorities (e.g., academic instruction,

standardized test preparation) and limited resources (e.g., time for teacher training) make it difficult to integrate such programs into these settings or sustain them over time. Schools serving economically disadvantaged communities face even more barriers (e.g., Weist and Paternite 2006; Wilson et al. 2003). Yet this population is particularly at risk, as the number of vulnerable youth is even higher due to the correlates of poverty (e.g., crime) that contribute to elevations in both anxious and depressive symptoms (Holmes et al. 1999; Leventhal and Brooks-Gunn 2000).

Further, the under-identification of internalizing symptoms in particular among elementary school children and ongoing, widespread stigma associated with receiving mental health services (e.g., Dwyer et al. 2006; Hinshaw and Stier 2008) highlight a need for preventive interventions. This may be particularly true for youth in poverty who, despite experiencing higher rates of anxiety and depression, are less likely to be identified for or receive services (Anderson et al. 2006; Thompson and May 2006). Developing strategies to mitigate risk for vulnerable youth is paramount.

Leveraging Recreation to Promote Resilience

A few notable programs have used children's recreational activities to both treat and prevent mental health problems. The Summer Treatment Program is well-known for utilizing a sports summer camp format to provide behavioral treatment for children with attention-deficit hyperactivity disorder (Pelham et al. 1997). While several studies have demonstrated symptom reduction and improved functioning (e.g., Pelham et al. 2000, 2014), the program is cost and time intensive for staff, thereby limiting its transportability to community settings (Frazier et al. 2012). Leaders @ Play was designed for middle school youth with elevated levels of emotional distress; youth received after school training that emphasized core skills of prevention programming (Boustani et al. 2015), including communication, problem-solving, and emotion regulation, and then practiced those skills as junior counselors during the summer camp that followed (Frazier et al. 2014). Leaders @ Play relied heavily on sports and physical activities to teach and practice skills and referred youth were exhibiting more externalizing than internalizing symptoms, reflecting teacher concerns. The Emotion Detectives Prevention Program (Ehrenreich-May and Bilek 2011) for anxiety and depression used components of the Unified Protocol, in the context of a children's summer camp, to prevent internalizing problems among youth. Programming relied on more traditional mental health activities delivered independent of, rather than infused into, recreational sports and games.

These programs extend beyond traditional treatment and prevention programming, relying on after school and outside of school opportunities to build resilience for youth exhibiting or at risk for psychopathology. They converge on their use of sports and fitness to teach social and emotional skills. By extension, we propose that prevention programs can even more explicitly and intentionally leverage the strengths, natural routines, and recreational activities of after-school programs and that activities such as art, dance, and music lend themselves equally well to providing opportunities for youth to learn and practice these important skills. Further, while previous studies have shown after-school program staff to be receptive to training and consultation (Frazier et al. 2013), it remains unknown the extent to which youth mental health need may influence the amount and type of consultation necessary and sufficient to create effective programming for those youth. For instance, staff providing after school care in settings where youth exhibit an overall higher level of mental health need may benefit from more frequent training and consultation. Similarly, after school staff with less experience and education related to child development and youth mental health may benefit from different types of support than staff with more experience. Ultimately, being a strong athlete doesn't make you a good coach; by extension, being a talented musician doesn't make you an effective music teacher. Support for less experienced music teachers may promote better outcomes for youth not only in music instruction but also in other domains that are often strengthened by involvement in recreational activities.

The Current Study

The current study represents the early stages of research collaboration with a community based after-school program focused on music education and social development for ethnic/racial minority youth or youth living in economically vulnerable communities. Collaboration and goals were two-fold: (a) provide training and consultation to music educators related to youth development, activity engagement, and behavior management, and (b) infuse social-emotional goals into music education via explicit opportunities for youth to learn and practice skills. These two collaboration goals led to the development of initial research questions to begin addressing each goal of collaboration. To support our first collaboration goal, we examined youth and family mental health and social functioning to document variability across sites that may influence ongoing program development, delivery and consultation. To support our second collaboration goal, we examined the extent to which there was stakeholder enthusiasm for a social-emotional curriculum, as measured

by staff attendance and youth participation and enthusiasm. We developed, implemented, and examined music activities that provide explicit and strategic opportunities for youth to learn and practice social-emotional skills. Programming was facilitated by clinical psychology graduate students ($N = 9$) and implemented over the course of one week, with 162 music students participating (48.5 % Latino, 40.9 % Black/African American). Although the data collected in this study are limited, we believe they represent a starting place for this work, with the possibility of advancing what we know about risks for anxiety and depression in economically vulnerable and immigrant communities and highlighting the urgent and critical need and under-utilized opportunities for after-school programs to promote mental health.

Method

Setting

Miami Music Project (MMP) is a non-profit, urban after-school music education program. MMP'S mission statement reflects their commitment to social development: "Miami Music Project uses music as an instrument for social transformation, empowering children to acquire values and achieve their full potential, positively affecting their society through the study and performance of music." MMP was founded in 2008 as an organization to introduce public school students to classical music. In 2010, MMP began their youth orchestra program, based on the El Sistema model of youth orchestras in Venezuela. The El Sistema model emphasizes ensemble participation by youth at all levels of musical training, group and individual instruction, peer-to-peer learning, and social development through music. MMP primarily is funded through private foundation grants and individual contributions. Programming is free for families whose children receive free or reduced lunch (and is offered for a nominal fee to families whose children do not), and students who qualify receive donated instruments.

MMP has experienced rapid growth (from 12 students to over 300 students in 5 years), serving four sites (expanded from the two sites that participated in this early work). Music classes are offered at local schools 3–4 days per week, with a variety of formats consisting of individual instruction and small (8–12 youth) and large (20–40 youth) group rehearsals. Youth are divided into classes according to their musical knowledge and skill that, at the time of the current study, included introductory (ages 5–7), novice (ages 7–12), beginner (ages 8–14), and intermediate (ages 8–18) levels. MMP's staff of "teaching artists" (N = 23, with overlap across program sites) consists primarily of professional musicians with training in music performance, though a few staff members have educational background or prior experience in music education. At the time of the study, MMP offered programs in two demographically distinct neighborhoods.

Site 1

Site 1 is located in a middle class, Latino neighborhood and serves primarily Latino students (83 % Hispanic/Latino, 16 % white, 1 % black). A total of 137 students were enrolled at Site 1, with 17 teaching artists providing music instruction. MMP classes are provided at a local middle school; however, most MMP students come from other schools in the area. Parent involvement is high, with a significant proportion of parents volunteering their time at MMP to assist with administrative needs and special events. Although many students come from middle class backgrounds (44 % of students come from families who make $50,000 or more per year; 56 % of students come from families who make less than $50,000 per year), music education opportunities in the area are scarce.

Site 2

Site 2 is located in a lower-income, predominantly Haitian-American neighborhood, with 47.5 % of the population living below the poverty line. MMP students represent the ethnic composition of the neighborhood (84 % black, 11 % Hispanic, 5 % white). A total of 127 youth were enrolled at Site 2, with 13 teaching artists providing music instruction. MMP classes take place at a local elementary school serving approximately 430 students. Ninety-four percent of students at the school come from economically disadvantaged backgrounds, and 43 percent of students are English Language Learners. Students struggle academically; 80 % of students are not proficient in reading by third grade. Further, 28 % of students receive two or more behavior referrals over the course of the school year. The majority of students in MMP are current or former students at the school.

University-Community Partnership

Our university team's partnership with MMP began three and a half years ago, initiated by MMP's program director. The investigative team met several times over the course of 10 months with MMP leadership about goals for collaboration. Early meetings prioritized relationship building and needs assessment, and meeting agendas at this stage were largely driven by MMP leadership, reflecting values inherent to community-based research (e.g., Dubois et al. 2011). Meetings lasted 90 min to 2 h and were scheduled

monthly until the team arrived at a decision to prioritize two partnership goals: (a) Support MMP teaching artists via training and consultation and (b) Infuse social-emotional goals into music education via explicit opportunities for youth to learn and practice skills.

First, MMP sought collaboration to support their teaching artists around enhancing student engagement and managing difficult behaviors. Specifically, they wanted to empower teachers by integrating into their initial and ongoing training information about youth development and mental health, principles of behavior, and strategies for family involvement. Three graduate students, each assigned to a Teaching Artist, followed the investigative team's prior consultation framework (Frazier et al. 2007), providing weekly, real-time support for Teaching Artists. Consultation focused on the development of clear rules, appropriate routines and instruction, and reward systems (e.g., Good Behavior Game; Barrish et al. 1969). Graduate students met weekly with Teaching Artists before or after class to discuss implementation and problem-solve challenges. In several cases, Teaching Artists revealed considerable concern about and difficulty addressing students' social and mental health needs. The investigative team's experience in MMP classrooms led to consideration for the extent to which the level of student mental health need across classes and sites may influence and inform the type of consultation required to meet MMP goals related to teacher support and the types of interventions and strategies recommended for classroom implementation. Toward that end, we developed a preliminary research question to begin addressing the first partnership goal: to what extent are emotion regulation deficits and internalizing symptoms elevated and variable across sites served by MMP?

Partnership Goal 1: Support MMP Teaching Artists via Training and Consultation

Research Question 1: To What Extent are Emotion Regulation Deficits and Internalizing Symptoms Elevated and Variable Across Sites Served by MMP?

Participants MMP youth ($N = 77$ consented; $N = 61$ completed; 69 % Site 1 and 31 % Site 2) and their parents provided information on mental health need. Youth ranged in age from 5 to 16 ($M = 9.67 \pm 2.66$). Twenty-five participants (41 %) were male. Youth were predominantly Hispanic/Latino (60.8 %) or Black/African American (35.3 %). Eighty-nine percent of parent participants were mothers. The majority of parent participants were over the age of 35 (79 %). Seventy-three percent of parents had completed a 2-year college degree or higher. Half of parents (51 %) reported a family income of $50,000 or greater, while nearly a quarter of parents (24.4 %) reported a family income of $21,000 or below. Parents' preferred languages included English (31.1 %), Spanish (32.8 %), and Haitian Creole (6.6 %), with many parents endorsing more than one preferred language (29.5 %). The majority of parent participants (78.8 %) had emigrated to the U.S.

Measures Measures were selected to cover a wide range of mental health problems (internalizing and externalizing problems), social functioning, and emotion regulation strategies. Measures were selected to do two things: (a) assess the mental health need broadly to support consultation to Teaching Artists, and (b) examine variability in emotion regulation, reflecting our second goal of integrating social-emotional skills into the music curriculum. Specific measures were selected due to their strong psychometric properties, low burden, widespread use with diverse samples, and availability in multiple languages. All measures were offered in both English and Spanish, as they had been reliably translated and reported to be psychometrically valid with Spanish-speaking populations. Forty-two percent ($N = 18$) of parents elected to complete measures in Spanish. All youth completed measures in English. The only measure available in Haitian Creole was the Hopkins Symptom Checklist (Derogatis et al. 1974). Although the investigative team had access to translation services, we determined that it would be premature to use such measures as determinants of youth mental health and social functioning without determining the suitability of the other measures among the Haitian Creole-speaking population in a larger trial investigating psychometric invariance. Thus, to include parent participants who spoke Haitian Creole and also include their children, parent participants who completed measures in Haitian Creole only ($N = 5$) completed the HSCL and demographic information and provided consent for their children to participate.

Revised Children's Anxiety and Depression Scale-Short Version (RCADS-25; Muris et al. 2002) The RCADS-25 is a 25-item informant-report measure of youth anxiety and depressive symptoms. Youth age 8 and above and their parents rated how often they experience a particular symptom on a 4-point scale (0 = never, 1 = sometimes, 2 = often, 3 = always). The RCADS-25 contains 5 subscales that map onto diagnostic criteria for anxiety and depressive disorders (separation anxiety disorder, social phobia, generalized anxiety disorder, panic disorder, and major depressive disorder). Additionally, the RCADS-25 includes cut-off scores for the 10th percentile to help identify youth with high levels of anxiety and/or depression. The RCADS-25 shows acceptable reliability in English and Spanish (Muris et al. 2002; Sandín et al. 2009). Youth were considered to have elevated internalizing symptoms compared to norms if they were at or above the 10th percentile on any subscale by either parent or youth

report. Total scores (sum across all items) on the RCADS were used for comparisons between sites. Internal consistency for the current sample was acceptable (Cronbach's $\alpha = .77$ for parent report, Cronbach's $\alpha = .91$ for youth report).

Emotion Regulation Questionnaire: Child and Adolescent (ERQ-CA; Gullone and Taffe 2012) The ERQ-CA is a 10-item self-report questionnaire used to assess children's emotion regulation strategies. The scale is comprised of two subscales: cognitive reappraisal (6 items, e.g., I control my negative feelings about things by changing what I'm thinking about) and emotional suppression (4 items, e.g., I keep my emotions to myself.). Children rate how much they agree with each statement on a 5-point scale (1 = strongly disagree, 2 = disagree, 3 = half and half, 4 = agree, 5 = strongly agree), and scores are averaged across items on each subscale. Initial investigations have shown strong psychometric properties (Gullone and Taffe 2012). Internal consistency for the current sample was acceptable (Cronbach's $\alpha = .88$ for the cognitive reappraisal subscale, Cronbach's $\alpha = .76$ for the emotional suppression subscale). Scores were compared to a normative sample (Gullone et al. 2010) with a cut-off of one standard deviation from the mean.

Strengths and Difficulties Questionnaire (SDQ Youth and Parent Version; Goodman 2001) The SDQ is a 25-item informant-report measure of youth mental health symptoms. Youth age 8 and above and their parents independently rated how well a particular statement characterized the child (0 = not true, 1 = somewhat true, 2 = certainly true). The SDQ contains a prosocial behavior subscale as well as four clinical subscale scores (hyperactivity/inattention, emotional symptoms, conduct problems, peer problems) that yield a Total Difficulties score. The SDQ has demonstrated good psychometric properties in English and Spanish (Gómez-Beneyto et al. 2013; Goodman 2001). Internal consistency for the current sample was acceptable (Cronbach's $\alpha = .68$ for parent report, Cronbach's $\alpha = .78$ for youth report). Scores on the emotional symptoms and peer problems subscales were used as measures of internalizing symptoms, while scores on the hyperactivity/inattention and conduct problems subscales were used as indicators of externalizing symptoms. The prosocial behavior subscale was used as a measure of youth's social functioning. Scores were compared to normative data from the National Health Interview Survey (2001), and a cut-off of two standard deviations was used.

Social Skills Improvement System (SSIS; Gresham and Elliott, 2008) The SSIS is a 51-item parent-report measure of youth adjustment. The SSIS consists of three scales: social skills, problem behavior, and academic competence. Parents rated the frequency of their child's behavior for each item on a 4-point scale (0 = never, 1 = seldom, 2 = often, 3 = almost always). The SSIS has demonstrated good psychometric properties in English and Spanish (Gresham and Elliot, 2008; Gresham et al. 2011; Schneider 2012). Scores on the problem behavior subscale ($\alpha = .94$) and social skills subscale ($\alpha = .98$) were used as as measures of youth social functioning. Scores were compared to a national sample representative of the 2006 US Census (U.S. Census Bureau, 2006).

Hopkins Symptom Checklist-25: Depression subscale (HSCL-25; from the HSCL-25, Derogatis et al. 1974*)* The HSCL-25 is a 25-item parent self-report measure of anxiety and depressive symptoms. Respondents rated the degree to which each symptom has characterized them over the past week on a 4-point scale (1 = not at all to 4 = extremely). In the current study, only items assessing depression were administered (a total of 15 items) to minimize burden. The mean score across items was used to determine "caseness" with a cut-off score of 1.75 (Winokur et al. 1984). The HSCL-25 has been validated against diagnostic criteria for major depressive disorder according to DSM-IV (Kaaya et al. 2002) and has been used with diverse populations, including Haitian caregivers (Fawzi et al. 2010). Internal consistency was acceptable for the current sample (Cronbach's $\alpha = .80$).

Procedure Participant recruitment and data collection Researchers attended parent events (e.g., MMP parent orientation, scheduled family nights, concerts) and were present during drop-off and pick-up times to provide families with an overview of the study purpose and procedures. Families had the opportunity to ask questions and provide written consent for their own and their children's participation. Following consent, parents either completed measures at their MMP site or brought them home and returned them to research staff at drop-off or pick-up. Youth completed measures at designated times pre-arranged with teaching artists during the after-school program and were compensated with a small prize. Parents and youth completed measures within 15–30 min.

Partnership Goal 2: Infusing Social-Emotional Goals into Music Education

Research Question 2: To What Extent is There Stakeholder Enthusiasm for a Social-Emotional Curriculum, as Measured by Staff Attendance and Youth Participation and Enthusiasm?

To begin addressing the second partnership goal, we developed a second research question: to what extent is there stakeholder enthusiasm for a social-emotional curriculum, as measured by staff attendance and youth participation and enthusiasm? MMP sought collaboration to

prioritize and enhance the social development goals of their program. Specifically, they wanted to infuse routine music instruction with more explicit and intentional opportunities for students to learn and practice social-emotional skills highlighted by their stated mission. Toward this goal, they asked our investigative team to develop and pilot a social-emotional curriculum called "Music Games". Discussions with MMP leadership centered on particular skills that would promote the organization's core values of respect, self-esteem, perseverance, teamwork, and compassion. Aligning these with common elements from evidence-based prevention programs (Boustani et al. 2015) led to the following three skills: feelings identification and relaxation techniques, cognitive change strategies, and problem solving.

Feelings Identification and Relaxation Techniques This skill focused on increasing youth awareness of their feeling states and accompanying reactions in their bodies, as well as techniques to help them handle stress and anxiety. First, reflecting effort in prevention science to increase youth emotional awareness (e.g., Izard et al. 2004), youth listened to and identified how different excerpts of music made them feel, using music clips to elicit particular feelings (e.g., sadness, fear, joy), for example, to help youth think about reactions in their bodies (e.g., heart beats faster when listening to a scary music clip). Second, relaxation training was introduced by using the length of music notes (whole, half, quarter) to demonstrate the effects of different types of breathing on mood and to introduce and practice relaxation skills. In music, whole notes represent 4 counts, half notes represent 2 counts, and quarter notes represent 1 count. Students breathed in and out to the count of different notes and reflected on the way that it made them feel. Then, whole notes were used to introduce and practice deep breathing.

Cognitive Change This skill focused on perspective taking and teaching youth about influences of thoughts on feelings and behaviors. Cognitive change strategies are common to both anxiety treatment (Silverman et al. 2008) and anxiety prevention programs (Boustani et al. 2015). Activities included playing/singing a melody in a major and minor key, discussing how these different ways of "thinking" about the melody can change how we feel about it, and using movie clips to demonstrate how thoughts (including biased attributions of ambiguous cues) can influence emotions and actions.

Problem Solving This skill teaches youth ways to approach and solve problems, including defining the problem, generating solutions, evaluating the feasibility and likely outcome of each potential solution, choosing a solution, and evaluating the results. Problem solving is common across prevention programs (e.g., anxiety, suicide, violence, life skills, sexual health) and, in fact, emerged as the most common element across a number of different types of evidence-based youth prevention programs (Boustani et al. 2015). Youth learned and practiced problem solving via the acronym SONGS (i.e., identify the Situation, explore your Options, Narrow your options, Go for the best one, Sit back and evaluate how it went) and put the steps into practice through games.

Implementation Activity participation and format All youth enrolled in MMP were eligible and encouraged to participate in 1 week of Music Games. Although the long-term vision was to integrate Music Games into regular instruction, implemented by teaching artists, for this pilot work MMP leadership asked the investigative team to plan and deliver a single week of activities that would follow their spring concert. Thus, MMP students and teaching artists both were encouraged but not required to attend (and teaching artists were not compensated for participation). Graduate students facilitated activities in pairs or individually with the help of MMP teaching artists and staff. Graduate student facilitators were assigned to sites and groups based on their availability. Group size varied from 4 to 20 MMP students. MMP students participated in 3 days of activities throughout the week during regularly-scheduled MMP programming, participating each day in a different set of activities targeting each of the three skills (e.g., feelings identification). For example, students in the introductory level participated in Feelings Identification activities on Tuesday, Cognitive Coping activities on Wednesday, and Problem Solving activities on Thursday. Activities were designed to fit within the 45-min rehearsal time, and graduate students followed a prescribed agenda for each day.

Facilitator characteristics and training Clinical psychology graduate students ($N = 8$) were in their first ($N = 1$), second ($N = 5$), or third year ($N = 2$) of doctoral training. They volunteered to receive training and implement activities toward the goal of acquiring community-based clinical research experience. Graduate students had variable prior experience treating youth with anxiety and depression ($M = .88$ years, $SD = 1.03$, Range 0–3 years), and variable prior experience offering community-based intervention ($M = 1.12$, $SD = 2.40$, Range 0–7 years). Facilitators received activity descriptions and agendas, and were asked to familiarize themselves with the activities prior to a 1-h group training, facilitated by the lead investigator (1st author), that included discussion and role-play. Training also included brief information on the university-community partnership, rationale underlying the study, participating MMP sites (demographics of the community, background of the staff, needs of the youth), professional expectations in the community, and managing

disruptive behavior (e.g., through use of the Good Behavior Game; Barrish et al. 1969). With the exception of two students, each graduate student observed a more experienced graduate student prior to leading activities themselves. Ahead of each day's activities, the first author met with all graduate student facilitators to review skills and activities for that particular day and offer feedback from the prior day. Although feedback from in vivo supervision was not feasible, graduate students took detailed notes for each class they facilitated in order to problem-solve at the end of the day with the first author (to prepare for the next day's activities). After the week's activities, all graduate students met for a 1.5-h clinical supervision about the week's activities.

Measures *Participation* Youth and staff attendance during Music Games was recorded.

Youth Satisfaction Youth completed 4 items (5 min) measuring overall satisfaction and student preference for activities. Students rated how much they liked each day's activities on a 4-point scale from 0 (sad face = did not at all like) to 3 (smiley face = liked very much). Students also listed their favorite and least favorite activities and indicated whether they would choose to participate in these activities again.

Facilitators and Barriers Graduate students completed an open-ended questionnaire about their overall impressions, classroom attendance, confidence with implementation, facilitators and barriers to implementation, and suggestions for improvement.

Data Collection and Analysis

All youth completed satisfaction measures after each day's activities. All graduate students completed measures related to facilitators and barriers to implementation following each set of activities. Data were collected and archived as part of Music Games to inform iterative revisions and additions to activities. Descriptive statistics provide preliminary results for acceptability and feasibility.

Results

Partnership Goal 1: Support MMP Teaching Artists via Training and Consultation

Research Question 1: To What Extent are Emotion Regulation Deficits and Internalizing Symptoms Elevated and Variable Across Sites Served by MMP?

Anxiety and Depression Results from the SDQ revealed 10 youth (of 60, 17 % of those where either parent or youth completed the SDQ) were two standard deviations or higher above the mean on either the emotional subscale or the peer problems subscale (either youth or parent report). There were no differences across sites on SDQ scores by either parent [t (48) = 1.10, p = .278] or youth self-report [t (35) = 1.08, p = .287]. Using either parent or youth report on the RCADS-25, 66 % of children (39 of 59) were at or above the 10th percentile on any of the five subscales. More youth were above the cutoff for separation anxiety (26 of 59) and social phobia (23 of 59) symptoms than for generalized anxiety (7 of 59), panic (9 out of 59), or major depression symptoms (10 of 59). Site differences emerged by youth self-report [t (34) = 2.29, p = .029]. Youth at Site 2 reported more anxiety and depression symptoms (M = 24.62, SD = 10.32) than youth at Site 1 (M = 15.87, SD = 11.39). There were no differences across site by parent report [t (48) = .20, p = .841].

Emotion Regulation Results from the ERQ-CA revealed 7 youth (19 % of 36 youth who completed the self-report measure) were one standard deviation below the mean for the cognitive reappraisal subscale, indicating low use of cognitive reappraisal strategies. Eleven youth (31 % of 36 youth) were one standard deviation above the mean for the emotional suppression subscale, indicating elevated use of emotional suppression strategies. Site differences emerged for the cognitive reappraisal subscale [t(34) = 2.08, p = .045]. Youth at Site 2 reported more use of cognitive reappraisal strategies (M = 4.08, SD = .73) than youth at Site 1 (M = 3.28, SD = 1.26). No site differences emerged for the emotional suppression subscale [t(34) = .17, p = .867).

Externalizing Behavior Results from the SDQ revealed 9 youth (15 % of 60 youth) two standard deviations or higher above the mean on either the conduct problems subscale or hyperactivity/inattention subscale. There were no site differences by either parent report [t (48) = 1.17, p = .248] or youth self-report [t (35) = 1.74, p = .090]. Results from the SSIS revealed 5 youth (8.3 % of 60 youth) above average (i.e., standard score above 115) on the problem behaviors subscale. There were no differences across sites [t (48) = 1.70, p = .097].

Social Functioning Using either parent or youth report on the SDQ, 4 youth (7 % of 60 youth) were two standard deviations or more below the mean, indicating low levels of prosocial behavior. Site differences emerged for youth self-report [t (35) = 3.21, p = .003]. Youth at Site 2 reported higher levels of prosocial behavior (M = 9.54, SD = 1.13) than youth at Site 1 (M = 7.50, SD = 2.13). There were no differences for parent report [t (48) = .036, p = .971]. Results from the SSIS revealed only one youth

with a below average score (i.e., standard score below 85) on the social skills subscale. There were no differences in social skills subscale scores across sites [t (48) = 1.06, p = .295].

Parental Depression Thirteen out of the 53 parents (25 %) who completed the HSCL reported elevated depression levels (i.e., scores above a cutoff of 1.75, indicative of the likely presence of depression; Winokur et al. 1984). Common symptoms endorsed [i.e., >10 % of the sample endorsed a particular item as either a 3 (quite a bit) or a 4 (extremely)] included "feeling low in energy or slowed down," "poor appetite," "difficulty falling asleep or staying asleep," "worrying too much about things," and "feeling everything is an effort." There were no differences across sites [t (48) = .91, p = .368].

Partnership Goal 2: Infusing Social-Emotional Goals into Music Education

Research Question 2: To What Extent is There Stakeholder Enthusiasm for a Social-Emotional Curriculum, as Measured by Staff Attendance and Youth Participation and Enthusiasm?

Participation Sixty-one percent of eligible students (youth enrolled in MMP) across sites participated in at least 1 day of social activities, including 59 % of students (81 of 137) at Site 1 and 64 % of students (81 of 127) at Site 2 for a total sample of N = 162. Participating youth represented all levels of instruction. Five staff (three Teaching Artists and two administrative staff) of 26 eligible (19 %) participated in Music Games week. Of those, three primarily observed activities, while two staff provided assistance with behavior management and co-facilitated activities.

Youth Satisfaction Youth endorsed high overall levels of satisfaction with activities; ninety percent of youth reported they liked or liked very much the activities that were presented (M = 2.31, SD = .74). Ninety-six percent of youth indicated they would participate in activities again if they were offered. Rates of satisfaction varied by age group (75 % for introductory students, 91 % for novice students, 95 % for beginner students, and 85 % for intermediate students) and by type of activity (95 % for feelings identification, 94 % for cognitive change strategies, and 89 % problem solving).

Facilitators and Barriers Graduate students overall (88 %; 7 of 8) reported confidence with activity implementation and high levels of student engagement. Challenges were reported with younger age groups (ages 5–8 in particular posed challenges with comprehension of the material as presented) and in groups where individual students displayed more severe levels of disruptive behavior.

Discussion

Adhering to principles and values of community-based intervention research (Dubois et al. 2011), the current study focused on two goals through collaboration with a community-based after school music program. First, we conducted a family mental health needs assessment to inform ongoing consultation to teaching artists around youth development, activity engagement and behavior management. Results revealed considerable mental health need among youth and their families that continues to inform ongoing teacher training and consultation, with a focus on the particular needs of individual communities. Second, we developed, implemented, and examined music activities through which students had the opportunity to learn and practice social-emotional skills, and we examined preliminary data on acceptability and feasibility to inform iterative revisions to the curriculum content and delivery format.

Partnership Goal 1: Support MMP Teaching Artists via Training and Consultation

Research Question 1: To What Extent are Emotion Regulation Deficits and Internalizing Symptoms Elevated and Variable Across Sites Served by MMP?

Nearly two thirds of youth reported heightened levels of anxiety and depression symptoms (at or above the 10th percentile). One quarter of parents also indicated elevated depression symptoms (i.e., a score indicating "caseness"), both reflecting needs that exceed prevalence rates reported in the literature (Costello et al. 2003). Perhaps this is not so surprising, as youth and parents in these communities face several challenges that could contribute to elevated rates of anxiety and depression. Many youth are the children of immigrants or are themselves immigrants, and consequently, many families experience difficulties associated with immigrant status. For instance, parents often travel back and forth between the United States and their home country, with separations and reunifications leading to increased stress and contributing to anxiety and depression (Rusch and Reyes 2013). In addition, language barriers may interfere with parents' ability to support their children's academic progress (e.g., challenges helping with homework and communicating with teachers; Turney and Kao 2009). Further, particularly for Site 2, a majority of youth are often from economically disadvantaged families,

where parents may be under-employed and lack knowledge of and access to resources (e.g., Williams and Sánchez 2013). Indeed, poverty-related stress has been associated with increased levels of anxiety and depression (e.g., Holmes et al. 1999). This may in part explain why youth at Site 2 reported even higher levels of anxiety and depression than youth at Site 1. The fact that there were no differences across sites for parent-reported child symptoms may reflect the under-recognition by parents of underlying internalizing problems, reflected in low to moderate correlations with child-reported symptoms (e.g., De Los Reyes et al. 2015).

These results suggest potential challenges for teaching staff whose performance background and limited experience with youth or teaching leave them unprepared to respond to disengaged behaviors that can accompany an internalizing profile. Training after school staff on youth development and strategies to engage students with mental health needs may help ensure that youth derive full benefits from participating in programs. Similar to training for parents whose children experience internalizing symptoms, teaching artists can learn about acceptance, encouragement, and basic behavioral principles (e.g., related to negative reinforcement and avoidance) that in turn may help them to create a classroom environment characterized by positive relationships and low-stakes opportunities for students to face their fears (e.g., practice performing in front of an audience). Within their classrooms, teaching artists could emphasize that mistakes are learning opportunities (rather than striving for perfection), celebrate and reward effort rather than outcome, help students appreciate and develop joy for music (which itself holds benefit for youth), and seek opportunities to leverage peers as positive models, rehearsal partners, and agents of change.

Further, site differences in mental health need, particularly for internalizing problems that are often overlooked and less easily observed than externalizing behaviors, suggest that the content and impact of training and consultation models may benefit from additions or modifications that address unique needs of these communities, including an explicit focus on how to recognize symptoms of anxiety and depression and how to make appropriate referrals for youth in need. There is a growing literature related to training school teachers to recognize mental health signs and symptoms and serve as gatekeepers to the mental health system (Levitt et al. 2007; Wyman et al. 2008). Extending this to after school time, music educators may be well-positioned for this role, as they spend considerable time with youth each week and have an opportunity to observe them in a more social setting.

In addition to elevated rates of internalizing problems, youth reported elevated rates of emotion regulation difficulties. Specifically, 19 % of youth indicated low use of cognitive reappraisal compared to norms, while 31 % of youth indicated over-use of emotional suppression. Given the association of these emotion regulation variables with increased rates of internalizing problems, interventions directed at strengthening emotion regulation may be particularly well-positioned to arm youth with skills that can help prevent or minimize internalizing problems.

Somewhat surprisingly, elevated rates of externalizing behavior were lower than those of internalizing problems, with 15 % of youth showing elevated symptoms on the SDQ and no differences across sites. The latter finding in particular contradicted our expectations, as previous work has shown elevated rates of externalizing behavior among youth in high poverty communities (e.g., Henninger and Luze 2014). It may be that parents and youth at Site 2 viewed higher levels of externalizing behavior as more normative within their community (Dirks et al. 2010), such that a particular behavior that may be viewed as problematic at Site 1 may be viewed as acceptable by parents and youth at Site 2. On the other hand, since the current study used only a screening measure of externalizing symptoms, it is also possible that more sensitive measures would yield a different outcome.

Partnership Goal 2: Infusing Social-Emotional Goals into Music Education

Research Question 2: To What Extent is There Stakeholder Enthusiasm for a Social-Emotional Curriculum, as Measured by Staff Attendance and Youth Participation and Enthusiasm?

With regards to acceptability and preliminary feasibility of the integrated curriculum, 61 % of eligible students participated in Music Games. By request of MMP leadership, we implemented Music Games during the week that followed the spring concert, which also coincided with state standardized testing. Attendance was encouraged but not mandatory. The rationale was that priority on social development would not interfere with students' preparation for the concert, and children whose parents preferred to bring them home after school while testing was in progress wouldn't miss rehearsal time. However, it should be noted that attendance exceeded estimates for other after-school programs nationally (e.g., Learning Point Associates 2011), suggesting the utility of integrating mental health promotion with after-school programming.

Attendance rates for Music Games may reflect parents' reliance on after-school programs for childcare during work hours, which would not have changed during the week of standardized testing. This may particularly be the case for students at Site 2, where students primarily came from the school where the site is located. However,

particularly for Site 1 where parents must drive their children to the program, the rate of attendance likely reflects interest by parents in these explicit skills building opportunities. Overall, though, we are encouraged by high levels of enthusiasm among participating students and staff, though we acknowledge that these results should be interpreted cautiously reflecting non-attendance and self-selection.

We did not systematically collect information from families about why their children did not attend, but the model is moving toward better integration of music education and social-emotional skills building, with weekly activities, homework, and opportunities for teaching staff to integrate skills throughout the rest of the curriculum (e.g., teachable moments, modeling). Youth in MMP will participate in 15-min activities weekly designed explicitly to focus on building social-emotional skills. Although 15-min is relatively brief each week, 15-min segments already represent one-third of music instruction (i.e., one-third of a class), reflecting MMP's significant investment and insight regarding feasibility and sustainability. In addition, homework assignments present opportunities for youth to practice skills, teach their parents, and in turn be reinforced at home, as supplemented by parent meetings introducing the skills and ways to reinforce their children using them. Anecdotally, during Music Games week, several parents expressed a great deal of enthusiasm to the investigative team, including an interest in designing a parent session for parents to learn the skills and activities delivered to their children so that they can model and reinforce them at home. Teaching artists also will model the skills, reinforce effort to use the skills, and provide positive and instructive feedback, increasing opportunities for youth to practice and observe the skills being taught. Importantly, this integrated model (versus Music Games week) is expected to reach all youth who regularly attend MMP. Finally, the model reflects a robust literature that suggests short, repeat opportunities for practice encourages skill acquisition and promotes better learning outcomes than extended practice sessions over a shorter timeframe (Pashler et al. 2007).

Likewise, although MMP staff was encouraged to observe and participate in Music Games, only five staff (of 26) attended any Music Games activities. Many staff, although they expressed interest, did not attend because they were not compensated for their time. Several MMP staff members are professional musicians, and they looked for gigs and performances to compensate for income lost that week. It thus reduced the information we could obtain from staff about their views of the integrated activities, their comfort with co-facilitation, and willingness to implement activities in their classrooms. Integrating weekly activities focused on mental health promotion would mean a task shift for teaching artists, with a new skill set and requisite workforce development, and this has become a direct focus of the ongoing work.

University-Community Partnership

Results from the needs assessment have informed conversation with MMP administration around the priority on social emotional skills and the nature, format, and delivery of social development activities. In our ongoing discussion with MMP, we have highlighted results from the current study suggesting high rates of internalizing problems, and these conversations have informed social-emotional curriculum development by focusing our conversation on skills aimed at improving emotion regulation, promoting good mental health and reducing and preventing anxiety and depression. However, conversations with MMP administration alone will not promote the adoption of an integrated social-emotional music curriculum. The extent to which teaching artists see these activities and the overall goals of promoting good mental health as similar to or well aligned with their current teaching practice will influence the likelihood of implementation and sustainability (Schoenwald and Hoagwood 2001). Further endorsement by and technical support for teaching artists from MMP leadership, reflecting their commitment to social development goals, also will encourage adoption of these new practices.

To promote adoption, implementation and sustainability, incorporate expertise of MMP stakeholders and build upon parents' expressed interest to increase involvement, we are currently adhering to a community-based participatory research framework to involve teaching artists and parents in shared decision-making around curriculum development and study design. The current structure includes three Consorts (i.e., community advisory boards) consisting of parents and teaching artists at each site, one Youth Consort, and a central Steering Committee consisting of one parent and one teaching artist representative from each Consort, one youth representative, MMP's program director, and the first author. Conversations with teaching artists and parents thus far have focused on community needs and priorities regarding mental health promotion and ways to increase youth's coping skills and teaching artists' ability to implement social development activities in their classrooms.

In addition to developing activities for the curriculum, we are building a training model that supports teaching artists to develop comfort, confidence, and competence implementing activities in their classrooms. We are discussing and developing ways by which teachers can implement and model emotion regulation, cognitive coping, and problem solving throughout routine music

activities (e.g., by using problem solving steps aloud to resolve conflicts during class time), maximizing opportunities for students to observe, learn and practice the skills. We are hopeful that such a model will not only improve the MMP experience for youth currently participating, but also that products of the current partnership (i.e., activities and teaching artist training) will be sustainable such that MMP can incorporate them into their infrastructure, and generalize them to additional sites, for many years to come.

Limitations, Lessons Learned, and Future Directions

The work presented here represents the evolution of a university-community collaboration to infuse mental health promoting skills into music education curriculum. The lack of availability of measures in Haitian Creole limited what could be learned about family mental health needs at Site 2. For this reason, as part of our continued collaboration with MMP, we currently are working on translating and validating a series of mental health measures into Haitian Creole to increase eligibility for participation among all families.

Additionally, there is a potential selection bias regarding participants who completed the measures, given that our sample was considerably smaller than the number of youth who participated in the week of Music Games. Further, given the early and iterative stage of curriculum design, we did not measure adherence to Music Games, or impact on emotion regulation or internalizing outcomes, as these were viewed by both the research team and MMP as premature. However, these preliminary data have informed important modifications to the format and content of the intervention activities, and more rigorous and systematic study is ongoing.

Finally, although the goal of the integrated curriculum was to adapt current skills building activities to fit a musical context, some skills lent themselves to this more readily than others. For example, feelings identification and relaxation training were more easily incorporated into musical activities than cognitive coping, for which we ended up relying more on movie than music clips per se. Perhaps it's not as important that all skills rely on music, but instead that all teaching artists model and reinforce the targeted skills during natural routines of music instruction. For example, teaching artists could use the "think aloud" strategy to model problem solving steps to identify a solution to a problem that arises during regular class time.

Informed by what we've learned here, collaboration with MMP continues to prioritize the original goals of supporting teaching artists and developing an integrated social-emotional and musical curriculum. Teaching artist training has expanded to include general training in youth development, behavioral principles, student engagement, and classroom management. The investigative team continues to offer real-time support for teaching artists who experience particularly challenging classes (e.g., where a higher proportion of students demonstrate disengaged or disruptive behavior). This real-time support by clinical psychology graduate students has included implementation of classroom management strategies, education and discussion about recognizing mental health problems, and referring youth to community mental health resources when appropriate.

Summary

Anxiety and depression among youth are common but preventable. For youth vulnerable to internalizing symptoms but with limited access to services, after-school programs may offer mental health promoting skills that can mitigate risk, build resilience, and minimize symptoms and impairment. The university-community collaboration presented here extends work done primarily in sports recreation to an after school music program, demonstrating preliminary acceptability and feasibility of an integrated social-emotional music curriculum. Attention to population-specific needs is warranted to ensure program staff is adequately equipped to handle the unique challenges facing each community. Data presented herein represent a starting place for this work, and we believe they advance what we know about risks for internalizing symptoms, in particular, in economically vulnerable and immigrant communities, highlighting the needs, opportunities, and urgency for mental health promotion after school.

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