

PROJECT ABSTRACT

Youth conduct problems, such as aggression, defiance, violence, and criminality, represent a major public health concern with substantial costs to individuals, their families, and larger society. When these behaviors escalate to the level of conduct disorder, they can be devastating not only to youth and their families in the form of social and educational failure but also have a far-reaching impact on mental health and education systems, juvenile justice, and social services. Juvenile diversion programs serve as an important gateway in identifying youth at high risk for escalations in conduct problems. However, the vast majority of diversion programming currently being provided is not evidence-based, in part because there are few evidence-based programs developed specifically for this population and setting.

Existing evidence-based preventive interventions for conduct problems are typically only modestly effective, highly resource intensive, and unwieldy for community delivery. Furthermore, the few programs evaluated within diversion settings have generally demonstrated little or no impact on youth outcomes. The proposed research seeks to innovate conduct disorder prevention in the context of juvenile diversion through several strategies. First, we will use a targeted, mechanism-based approach that is informed by cognitive neuroscience. This translational approach seeks to engage specific targets identified as critical mechanisms in etiological models of conduct problem development. We will target adolescent self-control, a construct with strong empirical support as a key risk factor for conduct problem development and escalation. Second, we will use an innovative research design known as a microtrial. This experimental design evaluates a brief intervention designed to impact a specific risk or protective factor but not necessarily bring about full intervention effects. Microtrials help inform the creation of full-scale intervention programs through the identification of efficacious intervention elements as well as malleable targeted mechanisms. The proposed microtrial will evaluate the ability of mindfulness-based skills training to impact self-control within an adolescent diversion population. Previous trials of mindfulness training provide preliminary evidence for positive effects on self-control in normative adult populations. The proposed research will extend this work to adolescents at risk for the development of conduct disorder and associated criminality.

The proposed research project represents a collaboration between a University of Minnesota research team and Headway Emotional Health Services, a community mental health agency that provides pre-court juvenile diversion services for youth offenders. The study will involve a randomized trial investigating an evidence-based mindfulness intervention (*Learning to Breathe; LTB*) for juvenile diversion-referred youth. We hypothesize that *LTB* will produce improvements in adolescent self-control. An educationally-based life skills training curriculum (*Skills for Success*) thought not to engage self-control skills will be evaluated as an active control condition. The proposed study will build upon an already active research partnership with Headway in order establish feasibility of practitioner training in both programs, sufficient recruitment, randomization, and successful program implementation with high fidelity. A further goal will involve piloting a comprehensive multi-method, multi-informant self-control assessment battery with research participants and their parents. Finally, the two programs (*LTB* and *Skills for Success* control) will be evaluated for preliminary evidence of their differential impact on adolescent self-control.

This study will provide critical pilot data for a federal grant submission funding a fully-powered randomized trial. If successful, this broader program of research will further our understanding of several key issues, including 1) the malleability of self-control when targeted by mindfulness training, and 2) the potential of self-control as an intervention mechanism for the reducing risk for conduct disorder and future offending. These results will inform intervention development by determining the value of mindfulness as an intervention component that could serve as standalone program or potentially be combined with other psychosocial intervention strategies. Furthermore, this research will help inform the development of evidence-based programming for juvenile diversion settings. The lack of available evidence-based programs for this unique population and setting represents a substantial area of need for community-based agencies in Minnesota and nationally. With increased availability of such programming, agencies will be able to increase the effectiveness of their services and better divert youth towards prosocial pathways at this critical developmental juncture.

A. SPECIFIC AIMS

Juvenile diversion programs represent a key portal for identifying youth at an early stage of conduct problem development prior to escalations to more serious delinquency and deeper involvement in the justice system. Involvement in juvenile justice is associated with a number of negative long-term outcomes, such as academic failure, underemployment, adult criminality, and delayed psychosocial development (Annie E. Casey Foundation, 2002; Steinberg, Chung, & Little, 2004). Unfortunately, there has been limited penetration of evidence-based programming targeting risk factors for escalation in conduct problems within juvenile diversion. Furthermore, the limited evaluation of programs in diversion settings reveals overall non-significant effects on youth outcomes (Schwalbe, Gearing, MacKenzie, Brewer, & Ibrahim, 2012).

The proposed study will address this need by evaluating an innovative approach to conduct disorder prevention within a diversion population. Recent discoveries in translational behavioral science are paving the way for a new generation of mechanism-based preventive interventions (Fishbein & Tarter, 2009). These interventions specifically target neurocognitive functioning and provide greater precision in reducing malleable risk factors. A novel research design known as a microtrial has been proposed to study the impact of targeted interventions on specific risk mechanisms (Howe, Beach, & Brody, 2010). Microtrials involve randomized experiments of brief and focused interventions that are designed to manipulate a specific risk or protective factor but not necessarily bring about full intervention effects. These experiments provide valuable information regarding the ability of specific programming to produce meaningful change in a targeted outcome. As such, microtrials help inform the development of full-scale interventions by determining the value of an intervention component and the associated malleability of the targeted risk mechanism.

We propose to test a brief mindfulness-based intervention (*Learning to Breathe Program [LTB]* (Broderick & Metz, 2009) in a microtrial with 50 at-risk adolescents referred from a court-ordered juvenile diversion program. This microtrial will evaluate the ability of the *LTB* program to produce positive changes in self-control, a self-regulatory mechanism associated with conduct disorder development (Cauffman, Steinberg, & Piquero, 2005). Self-control reflects the capacity to regulate attention, emotion, and behavior, especially to bring them into line with standards such as values and social expectations and to support the pursuit of long-term goals (Duckworth & Gross, 2014; Duckworth & Kern, 2011). In the absence of adaptive self-control skills, at-risk youth are prone to act impulsively, engage in harmful risk-taking, make irresponsible decisions, and if provoked may resort to aggressive and reckless behavior (e.g., assault, rule breaking, acts of defiance against authority figures, and destruction of property). Variations of this construct have been consistently implicated in the etiology of the related constructs of criminality (Gottfredson & Hirschi, 1990), conduct disorder (Frick, 2012), and life-course persistent antisocial behavior (Moffitt, 1993).

There is increasing evidence that mindfulness training produces positive effects on self-control (Teper, Segal, & Inzlicht, 2013). Through increasing present-moment awareness and acceptance of emotional states, mindfulness has been demonstrated in several experimental studies to produce positive effects on multiple facets of self-control (Chambers, Lo, & Allen, 2008; Jha, Krompinger, & Baime, 2007; Moore & Malinowski, 2009; Teper & Inzlicht, 2013). Notably, this previous work has occurred primarily in normative adult samples.

We propose to evaluate the ability of *LTB* to produce positive changes in self-control with diversion-referred adolescents. Self-control has not been previously targeted in the context of a mechanism-specific preventive intervention for juvenile diversion-referred youth. In order to assess the effects of *LTB* on self-control, a control comparison group will receive an educationally-based life skills intervention that does not target any related self-regulatory mechanisms. If *LTB* is demonstrated to produce positive effects on self-control in this population, this will provide support for the use of mindfulness training in targeting this well-established risk mechanism for conduct disorder. The goals of the current proposal include establishing implementation feasibility of the microtrial and assessment battery as well as generating preliminary evidence of the impact of *LTB* on self-control. Specifically, our study includes two primary aims:

- 1) Demonstrate trial feasibility including (a) monthly rates of referrals to the study, monthly rates of recruitment, and number of trial completers (attrition); (b) feasibility of practitioner training; (c) acceptability of *LTB* and life skills control conditions as rated by diversion youth, (d) feasibility of the assessment battery, and (e) counselor fidelity as measured by self-report and technician observations;
- 2) Generate preliminary evidence of the impact of *LTB* on self-control when compared to a control life skills condition using a comprehensive, multi-method, multi-informant self-control assessment battery.

The results of this trial will directly inform the submission of a grant proposal for a larger scale, fully powered trial to the National Institutes of Health. This program of research will further our understanding of the role of self-control as an intervention target for reducing risk for conduct problems and contribute to the development of evidence-based practices for use in juvenile diversion settings.

B. COMMUNITY SIGNIFICANCE

Youth conduct problems and criminal offending represent a pervasive problem in Minnesota and nationally. In particular, effective prevention of serious delinquency in at-risk youth is a critical area of need. Not only does incarceration affect the long-term physical and mental health of those imprisoned (Haney, 2003; Schnittker & John, 2007), but it is also estimated that the criminal justice system costs taxpayers 270 billion dollars annually (US Executive Office of the President, 2016). The proposed research study focuses on youth referred to a pre-court diversion agency by law enforcement due to committing minor illicit offenses (e.g., shoplifting, disorderly conduct). Diversion serves as a key portal for identifying youth who are at heightened risk for developing conduct disorder as well as substance use, depression, and anxiety disorders (Wareham, Dembo, Poythress, Childs, & Schmeidler, 2009). The standard practice for diversion agencies is to require restitution, community service, or simply to warn-and-release. Although these punitive interventions satisfy the public demand for accountability, there is little evidence that they prevent escalations in criminality or the development of other mental health disorders common in this population (Patrick & Marsh, 2005; Wilson & Hoge, 2013). Indeed, few programs have been systematically evaluated for their effectiveness in addressing the needs of juvenile diversion youth. The proposed research represents an important step towards addressing the need for effective interventions at this critical juncture in the progression of delinquency. The development of interventions with demonstrated effectiveness in a juvenile diversion setting could have a profound impact in reducing future offending and as a result improve youth outcomes, lower crime, and reduce the heavy economic and personal burdens of incarceration.

C – D. SCIENTIFIC AND MISSION SIGNIFICANCE

Conduct problems during the early adolescent years can have cascading effects throughout development, including progression to full conduct disorder, functional impairments (personal, interpersonal, and academic) and other serious mental disorders in later adolescence and adult years (Dodge & Pettit, 2003). Despite herculean efforts over the past five decades to develop effective interventions for conduct disorder prevention, the effects of these programs (largely based on ecological/systemic, social-learning and/or social-cognitive principles) remain small to moderate (i.e., mean effect size range from 0.35 – 0.47; McCart, Priester, Davies, & Azen, 2006). Moreover, existing evidence-based interventions are often not feasible for community-based use because the programming tends to be highly resource and time intensive. Heavy involvement of parents and teachers in many of these interventions also represents a substantial barrier to successful community-based implementation. These implementation challenges and the modest success of existing programs encourage consideration of new approaches to conduct disorder prevention.

There is a growing movement within the field of prevention to disaggregate traditional comprehensive multicomponent interventions to evaluate the individual efficacy of different elements of programming (Collins et al., 2011; Leijten et al., 2015). The goal of this approach is to identify the most efficacious elements that may be then re-aggregated to form an optimized program without inactive components. Optimized interventions reduce burden to agencies and practitioners and are likely to increase participant engagement and participation through the elimination of unnecessary content. By reducing resources required for program delivery and increasing engagement, agencies may broaden their reach and increase program effectiveness.

Microtrials are a novel research design that may be used serve these optimization goals (Howe et al., 2010). This design uses a highly targeted approach to evaluate carefully defined intervention components on specific outcomes. These designs offer a bridge between developmentally-based models of psychopathology and intervention development (Howe et al., 2010). Rather than focusing on the impact of full scale programs on distal outcomes, microtrials evaluate brief interventions that target specific previously identified risk and protective mechanisms for a given distal outcome. Findings from these trials provide evidence for both the individual efficacy of an intervention element or component as well as the malleability of a particular intervention target. When intervention elements are demonstrated to successfully engage a target mechanism, these elements may then be used to inform the development of efficient and effective full-scale programs.

Another emerging intervention framework (i.e., experimental therapeutics) seeks to leverage neuroplasticity by targeting for change specific neurodevelopmental processes that disrupt adaptive functioning in at-risk youth (Bradshaw, Goldweber, Fishbein, & Greenberg, 2012; Diamond & Lee, 2011). This approach is grounded in our understanding of developmental cognitive neuroscience and utilizes a translational framework to support greater precision in targeting critical neurodevelopmental risk factors. Dual systems models of adolescent neurocognitive development detail the independent development of competing systems related to motivational reward seeking and executive control (Steinberg, 2010). Adolescents typically experience early development of motivational systems responsible for reactivity to emotional and motivationally-salient stimuli. Appropriate self-control control to manage those impulses lags behind and does not typically fully develop until

later in adolescence. A larger developmental gap between these systems leaves many adolescents particularly susceptible to risk-taking behaviors due to high levels of sensation seeking and impulsivity with limited control over those impulses. We propose that self-control may be an important target for preventive interventions in the area of conduct disorder prevention. Consistent with dual-systems models, delays in self-control development represent a core mechanism underpinning emotional and behavioral disturbances in adolescence (Eisenberg et al., 2009). Self-control has a particularly well established role in the development of conduct problems and delinquency (Frick, 2012; Gottfredson & Hirschi, 1990; Moffitt, 1993).

We posit that at-risk youth (i.e., diversion clients) whose risk profile is marked by delays in self-control development will benefit from mindfulness-based training provided by the *Learning to Breathe Program (LTB)* (Broderick & Metz, 2009). Mindfulness-based programs provide youth with skills to shift their awareness and attention to the present moment and increase their acceptance of their emotional states (Teper & Inzlicht, 2013). When targeted through mindfulness training, these skills have been demonstrated to facilitate the development of self-control. With increased present-moment awareness, youth are better able to recognize when self-control is necessary in the moment in order to override pre-potent responses (particularly in emotionally-salient situations) (Teper et al., 2013). Acceptance of emotional states reduces emotional reactivity, which facilitates reflective decision making and associated control. Several empirical studies have demonstrated that mindfulness training produces positive effects on subcomponents of self-control, including cognitive flexibility (Moore & Malinowski, 2009), attentional processing (Chambers et al., 2008; Jha et al., 2007), and inhibition of prepotent responses (Teper & Inzlicht, 2013). Mindfulness has often been included as an element within evidence-based comprehensive multicomponent interventions for youth (Burke, 2010), but has seen less evaluation as a standalone element with adolescents.

To the best of our knowledge, the proposed study is the first to conduct a randomized controlled trial testing the effects of an adolescent-based mindfulness training program on self-control versus a control educationally-based life skills program. Our study would also be the first to conduct an RCT testing mindfulness training with an ethnically diverse, largely economically disadvantaged urban sample of at-risk adolescents. Last, our study would be the first to examine feasibility, acceptability and preliminary evidence of efficacy of a mindfulness training program delivered by a community agency that provides diversion services to juvenile-offending youth. If evidence can be garnered to show that a mindfulness-based preventive intervention can ‘work’ in this context, the results may (1) increase interest and enthusiasm among investigators for testing other mechanism-based intervention approaches with at-risk youth, and (2) encourage community systems-of-care serving other at-risk populations to adopt evidence-based programs that feature mindfulness training.

E. EVIDENCE-BASED PROGRAM

Learning to BREATHE (LTB) (Broderick & Metz, 2009) is a mindfulness-based program for older children and adolescents. Acceptability of mindfulness-based interventions with at-risk adolescents has shown promising results across a variety of venues including juvenile detention centers (Himmelstein, 2011; Himmelstein, Saul, Garcia-Romeu, & Pinedo, 2014) and outpatient clinics (Kerrigan et al., 2011; Sibinga et al., 2011). Data from the *LTB* program developer’s quasi-experimental matched comparison group studies show that *LTB* has a positive impact on youth emotion regulation and stress reduction (Broderick & Metz, 2009; Metz et al., 2013). *LTB* is a manualized intervention delivered in 6 group sessions, with home practice between sessions. It is guided by six themes each represented by a letter in the acronym ‘BREATHE’: Body, Reflection (thoughts), Emotions, Attention, Tenderness, Healthy Habits, and Empowerment. *LTB* trains youth in mindfulness skills including focused attention, awareness of inner experiences (cognitions and emotions), and non-reactivity (observing ones thoughts, feelings and actions without judgment or impulsive response) that form the basis for self-control skills. These goals are achieved through education regarding cognitive, emotional and stress responses as well as guided group practice in physical, mental and emotional awareness and non-reactivity.

A psychoeducationally-based life skills curriculum “*Skills for Success*” will serve as an active control condition. The choice of an active control condition is necessary for diversion-referred youth in order to meet program requirements for a “diversion contract.” In addition, the active control allows us to test the specificity of the *LTB* program in targeting a putative mechanism of conduct problem development over and above expectancies, attention, and other potential active ingredients that may be associated with any intervention. *Skills for Success* is based, in part, on Botvin’s *LifeSkills Training* program (Botvin, Eng, & Williams, 1980). The *LifeSkills* curriculum presents lessons that address developmental tasks of adolescence (peer relationships and coping with peer pressure, developing autonomy while maintaining positive relationships with parents, healthy and unhealthy decision making, intimacy and romantic relationships, and exploring vocational opportunities). *Skills for Success* **does not** include any content or behavioral change strategies that address

self-control or other self-regulatory skills. The programs will be matched for dosage and delivery methods (e.g., 6 sessions, 1.5 hour duration/session, small group delivery format).

F. PROJECT DESIGN AND METHODS.

Overview. The proposed RCT will compare two conditions: *LTB* program (6 sessions), and the *Skills for Success* (active control) program (6 sessions). Youth referred to the diversion programming at the Headway agency will be invited to participate. Participants (N =50) will be randomly assigned to one of the two conditions upon recruitment to the study. All intervention services will occur at Headway. Participants will complete two primary assessments in their homes, one pre-intervention and the other two weeks post-intervention.

Participants. Headway has a contractual relationship with the Hennepin County Attorney’s Office to provide pre-court diversion services for juvenile offenders cited by law enforcement for status or misdemeanor offenses including shoplifting, vandalism, disorderly conduct, underage drug use and assault. During a recent calendar year, Headway received 856 referrals for youth 13 to 17 years of age. Among these, 544 successfully completed their diversion contracts. This group was ethnically diverse: 65% Black, 22% white, 4% Latino, 5% multiracial, 3% Native American and 1% Asian. The gender distribution was 38% female and 62% male.

Recruitment Procedures: Accounting for likely attrition, we will recruit 65 participants in the age range of 13-17 years of age, with a goal of 50 program completers. Youth will be recruited from consecutive referrals to Headway’s juvenile diversion program over an 8-month period (beginning in mid-October of 2017). When introducing services, Headway staff will inform youth and parent(s) of the opportunity to participate in an optional research study offered by Headway in partnership with investigators at the U of Minnesota. Youth will have the option of voluntarily participating in the research study or receiving diversion services as usual.

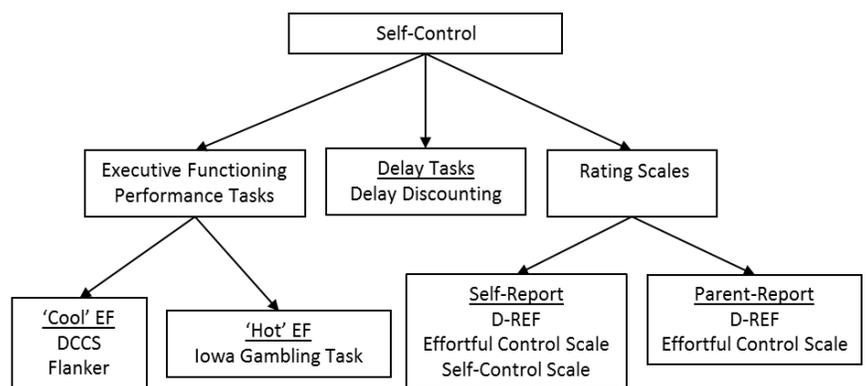
Research Protocol. Following expressing interest in the study, trial activities will be sequenced in the following manner: 1. Intake conference, at which time consent/assent forms are signed and random assignment of intervention condition (*LTB* versus *Skills for Success*) is discussed, 2. Baseline assessment in which intervention target measures are administered, 3. Interventions are delivered, and 4. Post-intervention assessment in which intervention target measures are re-administered (two weeks after completion of the final intervention session). The intake conference and both assessments will be conducted in family homes. Intervention delivery will be conducted at Headway sites.

Measures. Self-control and conduct problem measures will be completed at both baseline and post-intervention assessment time points. Performance-based self-control measures will be administered using a laptop computer or tablet (depending upon administration requirements). Fidelity and acceptability measures will be completed throughout intervention delivery and at post-intervention.

Demographics. A variety of demographic information will be collected from youth and their parents at baseline, including gender, race/ethnicity, income, family structure, and mental health history.

Self-Control. We will use a comprehensive multi-method, multi-informant approach to evaluating self-control following the framework proposed by Duckworth and Kern (2011). See Figure 1. In this framework, three primary modalities have been used in evaluating self-control, including 1) executive functioning performance tasks, 2) delay tasks, and 2) self- and informant-report rating scales. Executive functioning (EF) performance tasks are used to measure cognitive control processes associated with the prefrontal cortex. These EF

Figure 1. Self-Control Measurement Model



tasks are often divided in to ‘hot’ and ‘cool’ dimensions, with hot tasks reflecting functioning in motivationally and emotionally salient situations and cool tasks reflecting more decontextualized skills. The performance-based **Iowa Gambling Task** (IGT) will be used to evaluate hot EF. The IGT evaluates risky decision-making in the emotionally salient context of winning money in a card game (Bechara, Damasio, Damasio, & Anderson, 1994). Two performance-based, neurocognitive tasks will evaluate cool EF, including the **Dimensional Change Card Sort** (DCCS) and **Flanker Task**. The DCCS evaluates cognitive flexibility through a card sorting game (Zelazo, 2006). The Flanker Task uses target stimuli with either congruent or incongruent flanker cues to assess inhibitory control and attention (Rueda et al., 2004). Delay tasks evaluate the ability to delay immediate

gratification in favor of longer-term gains. The **Delay Discounting Task** (DD) will measure delay of gratification by assessing the tendency for youth to choose smaller, more immediate monetary rewards over larger monetary rewards with a greater delay (Olson, Hooper, Collins, & Luciana, 2007). Finally, self- and informant-report rating scales evaluate perceptions of self-control in 'real world' environments. Both youth and their parents will complete the **Effortful Control Scale** (16 items) from the Early Adolescent Temperament Questionnaire - Revised (EATQ-R; Ellis & Rothbart, 2001). Both parents and youth will complete the **Delis Rating of Executive Function** (D-REF; 36 items), which includes emotional, cognitive, and behavioral functioning scales, and an Impulse Control Index (Rueter, 2014). Finally, youth will also complete the **Self-Control Scale** (10 items; Tangney, Baumeister, & Boone, 2004).

Conduct Problems. While not a primary study aim, conduct problems will be evaluated in order to better characterize the sample and to assess preliminary evidence for their association with self-control. Both parent- and youth-report forms of the **Behavioral Assessment System for Children, Second Edition** (BASC-2) will be administered to assess youth conduct problems (Reynolds & Kamphaus, 2004).

Intervention Acceptability and Social Validity. Participant program satisfaction and its perceived usefulness in daily life is an invaluable resource for further program refinement. We will administer the **Credibility Scale** at post-intervention (Borkovec & Nau, 1972). This scale measures the degree to which participants believe their program is credible and effective in improving outcomes. This 5-item scale assesses expectations of the program's benefit and perceived value.

Quality Assurance Protocol. The interventions will be delivered at two agency sites. Counselors will devote an average of 10 hours per week to program implementation. A single counselor will conduct each group with sizes ranging from three to six participants. This size will allow for management of client behavior and providing opportunities for individual support. Each counselor will deliver only their assigned program after training, thus minimizing any potential spillover effects. Program manuals and program-specific fidelity checklists to guide program implementation are available for both *LTB* and *Skills for Success*.

Counselor Training: *LTB* and *Skills for Success* counselors will participate in separate training programs involving two initial half-days as well as four two-hour booster sessions in which they practice delivery of core curriculum components. Joel Hetler, Ph.D., is a certified trainer of *LTB* and will be the on-site *LTB* trainer and supervisor for staff. Similarly, Nicole Morrell, MEd (U of M team) has completed training and certification in *LifeSkills* and will be the on-site *Skills for Success* trainer and supervisor.

Technical Assistance, Supervision, and Performance Feedback. Hetler and Morrell will schedule biweekly implementation support and technical assistance meetings that will feature a review of practice parameters and provide oversight of fidelity. They will personally observe each counselor during live service delivery (pending youth and parent/guardian consent) for a minimum of 6 hours to provide feedback and coaching.

Fidelity Documentation – Self Reports. Counselors will complete a fidelity checklist for each session that documents attendance, content covered, session length, participant engagement, and homework assigned.

Fidelity Documentation – Live Observation. Fidelity will also be evaluated using live technician observations. For training, experienced fidelity technicians will observe previously video recorded sessions and code until they demonstrate high inter-rater reliability (> .80). Technicians will observe each counselor dyad during live program delivery. During each intervention cycle, observations will be conducted for a random sample of 20% of the sessions. Half the observations will be conducted by two raters. In order to avoid rater drift, ratings will be examined across intervention cycles, and if necessary drift will be corrected via additional training. Technicians will demonstrate acceptable inter-rater reliability (ICCs and Kappas > .80). Fidelity criteria will include adherence to the assigned content scripted for each session and quality of delivery. If a counselor consistently falls below appropriate standards for the intervention, retraining will occur.

Data Analysis.

Evaluation of Trial Feasibility. We will collect de-identified participant recruitment data via logs and record forms. Data will include: (1) monthly rates of youth referred to diversion and offered the option to participate in the research, (2) monthly rates of number youth enrolled in the research, (3) percentage of youth who complete pre-intervention and post-intervention assessments (trial completers), and (4) percentage of youth who completed all intervention sessions. We will also compare aggregate data provided by Headway regarding youth who did not consent for services with data regarding those who provided consent to assess the representativeness of the enrolled sample. We will make strong effort to collect data from trial dropouts to determine reasons for withdrawal. Acceptability data will be closely examined for overall impressions as well as any specific areas of low acceptability. For both self-report and observer fidelity ratings, we will compute aggregate fidelity scores in order to examine implementation fidelity within and between (1) intervention conditions (*LTB* vs. *Skills for Success*), (2) therapists, and (3) agency sites.

Preliminary Evaluation of Intervention Effects on Self-Control. We will inspect distributions, univariate and multivariate normality, covariance structures, as well as joint distributional properties of each self-control measure. Acceptable measures will be evaluated for intervention group differences. We will use mixed model regressions to take into account the nesting of participants in intervention groups. Post-intervention measures will be regressed on intervention groups (categorical), baseline measures, and covariates (age, gender, SES). Missing data patterns will be examined and multiple imputation methods will be applied if appropriate.

G. PARTNERSHIP

The research will be conducted as a collaborative effort between Headway Emotional Health Services Agency, a community child-serving agency, and investigators from the University of Minnesota. For the past four years, Headway and the University of Minnesota have formed an active and successful research partnership. Hal Pickett, Psy.D., ABPP, Director of Client Services, will serve as community principal investigator (See letter of support). Dr. Pickett is a former University of Minnesota faculty member and is well versed in the successful implementation of research. He has been an active member of the ongoing research partnership and is highly committed to success of the proposed research. His primary role will be to support the implementation of the project at Headway through appropriately managing staff assignments and time and facilitating other aspects of the projects (e.g., recruitment procedures, Headway-based data collection). Dr. Piehler has been a lead researcher in this partnership and has successfully completed a separate funded pilot project as PI (Grant-in-Aid, 1/2015 – 3/2017) in collaboration with Headway. Consultant Gerald August, Ph.D. has also been a lead researcher in this collaboration and will continue to provide active support of the proposed project. Through this research partnership, the *LTB* intervention has undergone initial small-scale feasibility piloting with a diversion population at Headway. Dr. Joel Hetler and Nicole Morrell have also been key University members of this partnership, and they will continue to support the project through coordination of therapist training and fidelity monitoring and management. Ms. Morrell will also be the direct supervisor for the assessment technicians.

The proposed protocol has been approved by Headway administrators and support among practice staff has been achieved (see letter of support from Headway). During the early phases of the University partnership, Headway has demonstrated strong capacity to support ongoing research, including the ability to successfully recruit research participants, deliver an evidence-based intervention with acceptable fidelity, as well as provide staff time and resources to ensure successful implementation. While the small pilot implementations of *LTB* have been successful, additional elements of the proposed research not previously evaluated will include introducing randomization to the research protocol, an expanded roll-out of *LTB*, a new life skills control condition, as well as a greatly expanded assessment protocol.

E. NEXT STEPS

This study will provide compelling pilot data that will be of strong interest to prevention researchers at meetings such as the Society for Prevention Research. Most importantly, the pilot data generated from this study will be utilized for an R61/R33 federal grant submission seeking funding for a fully powered randomized controlled trial. The research team has been in consultation with a program officer from the National Center for Complementary and Integrative Health (NCCIH), an institute of the National Institutes of Health (NIH), who has expressed strong interest in the study. The pilot data collected through the proposed research will provide evidence of feasibility of a larger scale trial as well preliminary support for the engagement of the targeted outcome, self-control. These data will be critical in forming a competitive application with NCCIH. Several areas of the proposed research will be important to explore in the context of a larger scale trial. First, longitudinal follow-ups will be critical in order to demonstrate the role of intervention-related changes in self-control in directly reducing risk for the development of conduct problems. Furthermore, a fully powered design will allow for the exploration of individual variability in response to a mindfulness intervention. We hypothesize that some diversion youth may derive more benefit from mindfulness training than others do. Finally, we plan to evaluate the value of mindfulness programming as compliment to other traditional psychosocial intervention components for youth conduct problems (e.g., programming targeting family management practices). If successful, this program of research will further our understanding of the role self-control as a mindfulness intervention-related mechanism for reducing risk for conduct problems and future offending. Furthermore, this research will advance the development of evidence-based programming for juvenile diversion settings. This underresearched population and service setting will benefit greatly from increased availability of evidence-based practices.