School-Based Opportunities for Adolescent Recovery (SOARing): Preliminary Feasibility of a

Tier 2 DBT-Based Skills Program for At-Risk Adolescents Residing in an Underserved

Community

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#### Abstract

Adolescents living in poverty are more likely to experience intense and/or multiple stressors during childhood (Evans & Kim, 2012). These increases in stress levels can lead to patterns of pervasive emotion dysregulation which, in turn, can affect academic achievement (Ivcevic & Brackett, 2014). Dialectical Behavior Therapy (DBT) is a promising intervention that can target emotion dysregulation and other symptomatology in adolescents (Miller et al., 2006). Although DBT has gained traction in the treatment of adolescent suicide and self-harm (Glenn et al., 2019), it has yet to be tested as an early intervention in a school-based setting (Fasulo et al., 2015; MacPherson et al., 2012). The purpose of this study is to examine the preliminary feasibility of a tier 2 DBT skills group intervention for adolescents in a school-based context. It was anticipated that adolescents receiving the DBT-based intervention would experience an overall positive opinion of group sessions for each session. We used post-session survey evaluation forms to track youth feedback about the intervention. We also hypothesized that the DBT-based intervention would have a positive impact on youth, measured by reduced scores on the Youth Outcomes Questionnaire – Self Report (YOO-SR). Group sessions were rated positively overall (M = 3.28 out of 4) and preliminary effectiveness yielded a drop in scores but was nonsignificant. Project SOARing revealed promising, preliminary results that warrant further investigation.

*Keywords*: Dialectical Behavioral Therapy, school-based intervention, adolescents, feasibility, tier 2 intervention

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Families of low socioeconomic status are more likely to experience more intense and a higher number of stressors compared to more advantaged families (Evans & Kim, 2012). As a result, children and adolescents that come from low-income households are more prone to developing problems in regulating their emotions, which can result in difficulties in academic achievement, motivation, aggressive behaviors, and psychopathology (Morrison et al., 2010). Current research addresses few methods of intervention planning that promote both general wellbeing and academic performance. Of those studies, an even smaller percentage take place in a school setting. A school environment offers an ideal location in which to implement mental health strategies that can improve areas such as academic performance (Bry & George, 1980; Campbell & Ramey, 1995; Guerra & Bradshaw, 2008), goal-directed behavior (Rapee et al., 2005), distress tolerance (Kowalenko et al., 2005; Kraag et al., 2006; Van Loon et al., 2019), interpersonal effectiveness (Guerra & Bradshaw, 2008; Kowalenko et al., 2005), and mental health (Anderman, 2002; Barrett & Pahl, 2006; Calear & Christensen, 2010; Jayanthi et al., 2014; Masia-Warner et al., 2006; Neil & Christensen, 2009; Van Loon et al., 2019). School settings provide an accessible environment to facilitate non-stigmatizing techniques toward wellbeing.

Dialectical Behavior Therapy (DBT) is a promising, effective method in the treatment of adolescents with a variety of disorders and symptoms such as Borderline Personality Disorder (BPD) (Groves et al., 2011; MacPherson et al., 2012), eating disorders (Beckstead et al., 2015; MacPherson et al., 2012), depression and anxiety symptoms (Geddes et al., 2013; Orbach et al.,

2007; Tamas et al., 2007; Woodberry & Popenoe, 2008; Zlotnick et al., 1997), and emotion dysregulation (Burckhardt et al., 2018; Fasulo et al., 2015; Nelson-Gray et al., 2006). The aim of this study is to examine the preliminary feasibility of implementing a DBT-based skills tier 2 intervention program in a school setting for at-risk, low-income youth. We anticipate that those who participate in the DBT-based skills group will report positive remarks on the overall opinion of the group sessions. It is also expected that preliminary effectiveness will be observed. First, we review the literature on adolescent emotion regulation among youth living in adverse financial situations. Next, we explore the current state of the science around interventions for adolescents and within school settings. Finally, we review the literature on DBT – a promising treatment avenue for adolescents.

#### Literature Review

# **Emotion Regulation**

Emotion regulation involves the "extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (Thompson, 1994). Adolescents may experience periods of heightened stress vulnerability which can lead to emotion dysregulation and burnout, caused by overstress or being overworked, depression (Backer et al., 2009; Van Loon et al., 2019), anxiety, externalizing problems, substance use (Rapee et al., 2005), and a decrease in attendance (Bry & George, 1980; Van Loon et al., 2019). In one study, reports of unstable emotion regulation led to increases in internalizing and externalizing manifestations such as depressive symptoms and problem behaviors (Silk et al., 2003). Berking et al. (2014) found further evidence that difficulties in emotion regulation result in negative consequences with depressive symptoms. In their longitudinal study, emotion dysregulation was a critical element in

the development and persistence of depressive symptoms. The long-term consequences of emotion dysregulation on depressive symptoms included decreased tolerance for negative emotion and decreased motivation in problem-solving behaviors. Emotion dysregulation can similarly lead to increases in anxiety symptoms (Bender et al., 2012; McLaughlin et al., 2011), mood and anxiety disorders (Hofmann et al., 2012), interpersonal issues with peer and parents (Adrian et al., 2011), eating behaviors (Safer et al., 2007), non-suicidal self-injury (Adrian et al., 2011), suicidal ideation and attempt (Rajappa et al., 2011), and stress and aggressive behaviors (Herts et al., 2012; Lansing et al., 2017; McLaughlin et al., 2011; Silk et al., 2003). Increases in emotion dysregulation as a result of stressful life events have led to higher levels of reported aggressive behaviors in adolescents (Herts et al., 2012).

Low socioeconomic status. Disadvantaged adolescents are more likely to experience intense and/or multiple stressors throughout childhood such as separation from caregivers, chaotic environments, and family dysfunction (Evans & Kim, 2012). As a result, youth who are of low socioeconomic status are at an increased risk for emotion dysregulation and other negative consequences such as internalizing and externalizing behaviors and delinquency (Hardaway et al., 2011; Kim et al., 2013; McClelland & Cameron, 2011; Wadsworth, 2011). Morrison et al. (2010) observed that financially disadvantaged children experience lower levels of self-regulation and academic performance compared to peers of middle-class status or higher. Occurrences in daily life such as immigration status, neglect, inconsistent parenting, and neighborhood crime are all associated with such decreases (Criss et al., 2016; Morrison et al., 2010). Criss et al. (2016) discovered that exposure to violence in a neighborhood setting was directly and indirectly related to decreases in anger tolerance and sadness tolerance with little change across sex and age. Consequences to similar stressful situations have also led to problems

with impulse control, attention, and working memory (Evans & Kim, 2012). Given that emotion regulation difficulties are common in adolescence generally, being from a low socioeconomic status background could potentially place youth at an even more elevated risk of developing emotion dysregulation issues along with potential internalizing and externalizing behaviors.

Lansing et al. (2017) examined the link between adverse childhood experiences (ACEs) and associations with delinquency, criminality, and violence. ACEs are described as stressful events throughout the course of early to late childhood that can negatively impact a child's functioning and include incidents such as divorce, parent incarceration, neglect, and various forms of abuse (Foege, 1998). According to Lansing et al. (2017), an increase in the amount of ACEs incidents throughout childhood results in the escalation of disruptive behaviors characterized by early-onset delinquency. Each incident creates stress that has increasingly negative effects on mental health, cognitive development, and motivational behaviors such as goal achievement. An increase in the number of ACEs reported also leads to a higher risk of emotion dysregulation, interpersonal issues, and attachment difficulties. As a result, youth experience higher levels of aggression and conduct problems that can affect academic performance, achievement and difficulty with social relations. Youth who experience chronic stress undergo what is known as an allostatic load (McEwen, 2000). This is common in children who are of low socioeconomic status and is linked to developmentally related issues such as delayed cognitive development, mental health symptoms, and increased risk for learning disabilities (Graham et al., 1999).

In an examination of cortisol levels across multiple risk factors, it was determined that youth who experienced higher numbers of reported life stressors had increased cortisol levels in comparison to peers who experienced lower numbers of reported life stressors (Kliewer et al.,

2008). However, for adolescents who had previously developed appropriate emotion regulation skills, differences in cortisol levels were not found regardless of the number of multiple risk factors reported. Proper skills in emotion regulation have led to a decreased risk in the development of psychological symptoms (Buckner et al., 2010; Evans & Kim, 2012; Raver, 2004; Wadsworth, 2011). Furthermore, self-regulation has remained a mediator in the link between emotion regulation and positive outcomes including decreased risk for externalizing behaviors (Hardaway et al., 2011), academic performance, overall well-being, and interpersonal effectiveness (Buckner et al., 2010). Interventions aimed at reducing emotion dysregulation have proved promising in promoting resiliency, effective coping skills, and decreases in mental health symptoms (Campbell & Ramey, 1995; Guerra & Bradshaw, 2008; Shahbazirad & Azizi, 2018).

Academic Performance. Increases in stress levels have led to reductions in academic performance (Lansing et al., 2017), emotion dysregulation, and overall well-being (Shahbazirad & Azizi, 2018). Differences in cognitive processing such as attention, memory, and interpretation have been observed during periods of emotional vulnerability (Mathews & MacLeod, 2005). The ability for youth to regulate emotions is a significant predictor of school outcomes (Ivcevic & Brackett, 2014). Successful management of emotions encourages regulation of the self and a higher stress tolerance. Ivcevic and Brackett (2014) point out that emotion regulation allows for youth to develop productive strategies toward academic achievement such as controlling frustration and stress levels during difficult or long-term assignments. This can also be applied in situations that involve anxiety such as test taking and interpersonal effectiveness with teachers and peers. Youth who possess emotion awareness experience fewer academic struggles (Brackett et al., 2011; Ivcevic & Brackett, 2014; Mestre et

al., 2006), more positive attitudes about school, and lower levels of anxiety and depression as reported by their teachers (Brackett et al., 2011).

Elevation of academic difficulties and internalizing or externalizing behaviors have been consistently identified in early-onset and persistent delinquent adolescents that put them at high risk for school absenteeism or dropout (Lansing et al., 2017). These behaviors have also led to a decrease in performances inside the classroom such as executive and verbal deficits compared to children who do not experience high occurrences of ACEs. Stress decreases the postnatal hippocampal neurogenesis that provides functioning for learning and memory within the brain and increases risk of depression. Lansing et al. (2017) note that consequences of increased stress levels as a result of more than three ACEs result in early-onset alcoholism, psychopathology, and health-related issues. Similar results were found in a study conducted by McLeod et al. (2012). Children who experienced at least two or more ACEsduring early childhood achieved lower education levels and had overall lower grade point averages (GPA) than children who only experienced one ACE. The same results were found in comparison to children with mental health symptoms in contrast to their peers. Moreover, youth who possessed additional externalizing symptoms, substance use in particular, had a greater decrease in grades and overall educational attainment.

Other issues between general mental health and academic performance include areas such as attitudes about school and academic motivation (Arsenio & Loria, 2014; Casillas et al., 2012; Valiente et al., 2011). Students who carry more negative outlooks on life and school receive lower GPAs and test grades in comparison to their peers (Valiente et al., 2011). In contrast, students who identify as having traits of joy, hope, and pride experience higher levels of academic interest, effort, productivity, and achievement. Arsenio and Loria (2014) found related

results for negative attitudes about school and withdrawal during class that were also associated with a decrease in overall GPA. Students who experience various outside stressors and undergo negative changes in emotion regulation may become less motivated to attend school or to meet academic standards. They may carry more negative outlooks on life as a result of emotion dysregulation which can influence motivational interest in the pursuit of an academic career. This, in turn, can affect areas such as determination and output in academics.

# **Early Intervention**

**Intervention for Adolescents.** Adolescence is a crucial period in life where youth experience some of the most constant and irregular stressors that are correlated with mental health problems (Jayanthi et al., 2014; Van Loon et al., 2019). Several studies have shown that academic affairs have been a major source of stress for adolescents in school (Anderman, 2002; Jayanthi et al., 2014; Van Loon et al., 2019). Throughout these studies, various improvements in academic functioning have been correlated to intervention programs as a source of socialemotional learning. Van Loon et al. (2019) found that intervention programs can improve coping skills in dealing with academic stress while also reducing school stress levels. They emphasize that low threshold intervention programs are ideal for improving adolescent well-being and functioning that can, in turn, affect academic performance. In some cases, early intervention can prevent the decline of overall grade point averages, school attendance (Bry & George, 1980), decreased medical use, and substance abuse (Rapee et al., 2005). Anderman (2002) stresses the importance of flagging adolescents in earlier stages of academic decline as interventions can combat academic stress and symptoms of depression. Early intervention has been shown to create long-term effects to both academic performance and emotion regulation up to 7-10 years later (Campbell & Ramey, 1995).

Emotion regulation is a main contributor in gaining effective coping strategies to deal with stressful life events and life satisfaction (Shahbazirad & Azizi, 2018). McClelland and Cameron (2011) emphasize that self-regulation is an important component behind academic performance due to its effects on attention, working memory, and inhibitory control. Multiple studies have provided evidence for emotion regulation intervention strategies that improve either academic performance or emotion regulation (Hasani & Shahmoradifar, 2016; Lansing et al., 2017; Shahbazirad & Azizi, 2018). Lansing et al. (2017) found that an emotion regulation intervention program in a school-based setting improved both academic performance and social-emotional learning. Emotion regulation programs have also had success in the reduction of negative emotions (Shahbazirad & Azizi, 2018). In a study conducted by Hasani and Shahmoradifar (2016), an emotion regulation intervention decreased students' impulse control, difficulty engaging in goal directed behavior, lack of emotional clarity, lack of emotional awareness, and increased students' emotion regulation strategies.

There have been several studies conducted reporting the efficacy of intervention programs geared toward emotion regulation skills and social-emotional learning for adolescents (Calear & Christensen, 2010; Guerra & Bradshaw, 2008; Kowalenko et al., 2005; Van Loon et al., 2019). In some studies, preventative programs have been implemented to teach emotion regulation and coping skills to reduce academic or overall stress (Guerra & Bradshaw, 2008; Van Loon et al., 2019). Other studies specifically focused on reducing symptoms for those at-risk for depression (Calear & Christensen, 2010; Kowalenko et al., 2005). Studies of emotion regulation skills training and coping skills training report an increase in overall academic performance and well-being (Guerra & Bradshaw, 2008; Van Loon et al., 2019). These programs also produce an increase in interpersonal effectiveness, emotion regulation skills (Van Loon et al., 2019), coping

skills (Kowalenko et al., 2005; Van Loon et al., 2019), and academic performance (Bry & George, 1980; Campbell & Ramey, 1995; Van Loon et al., 2019), while decreasing occurrence of mental health symptoms (Calear & Christensen, 2010; Kowalenko et al., 2005; Neil & Christensen, 2009; Van Loon et al., 2019), absenteeism (Bry & George, 1980; Rapee et al., 2005), and dropout (Van Loon et al., 2019).

School-based Interventions. A school-based setting for intervention and prevention programs has been documented as an ideal environment in which to implement awareness and education of mental health and coping mechanisms (Barrett & Pahl, 2006; Masia-Warner et al., 2006; Van Loon et al., 2019). Schools offer an environment that can facilitate the implementation of mental health programming at the universal or targeted level (Barrett & Pahl, 2006; Masia-Warner et al., 2006; Van Loon et al., 2019). Indeed, schools offer a convenient location for youth to learn about coping skills while eliminating barriers such as transportation and stigma that are commonly associated with traditional mental health service clinics (Barrett & Pahl, 2006). Masia-Warner et al. (2006) note that a school environment subconsciously cues an individual to learn as school is seen as a location in which to acquire information. It is seen as an open environment where adolescents are on an equal level and have a desire for advancement and achievement. A school-based setting provides a convenient location for adolescents to adopt coping skills that will carry a lasting benefit. It can also supply a low-cost alternative to therapy and patient mental health care. Furthermore, a school environment eliminates the boundaries of time, location, and stigma that are commonly associated with traditional mental health services (Barrett & Pahl, 2006).

There is growing literature on the effectiveness of school-based intervention programs that address non-specific problem areas such as emotion dysregulation, interpersonal relatedness,

and stress. Of note, Zenner et al. (2014) examined the effectiveness of mindfulness-based interventions in schools, which led to an increase in cognitive performance and psychological flexibility when dealing with stress. Another study researching mindfulness intervention in schools has also shown favorable results, with improvements in stress management (Mendelson et al., 2010). One study determined that implementing positive psychology programs in schools results in improvements in the areas of well-being, interpersonal relatedness, and academic performance (Waters, 2011). Kraag et al. (2006) conducted a meta-analyses of school programs that specifically targeted deficits in coping and stress management. While this study concluded advancement in reducing stress and increasing coping, each intervention reviewed focused on a specific problem area, rather than on a range of issues that can affect adolescents.

Meta-analyses of school-based prevention and intervention programs for both depression and anxiety symptoms revealed a small to large effect size (Calear & Christensen, 2010; Neil & Christensen, 2009). Programs designed primarily to reduce anxiety symptoms were overall effective in both children and adolescents (d = .11-1.37) (Neil & Christensen, 2009). It is important to note that most programs in this study were aimed at reducing symptoms of nonspecific anxiety and not treatment of anxiety disorders. Programs designed primarily to reduce depression symptoms are also highly efficacious for children and adolescents (d = .21-1.40) (Calear & Christensen, 2010). Indicated programs, which target individuals with early symptoms of depression, had more dependable outcomes at both post-intervention and at follow-up. One interesting finding from this study suggests that programs that are twelve sessions or longer and programs that are shorter than 8 sessions were less effective in reducing symptoms of depression than programs that were between 8-12 sessions (36% to 62%). This could be due to

length of exposure to material and practice of skills or the amount of information contained within each program.

Lack of Access. Little research has been conducted in relation to school-based intervention programs for low-income adolescents (Atkins et al., 2006; Atkins et al., 1998; Black & Fernando, 2013). One study examined low-income youth and the effects of school-based intervention programs and concluded that such programs benefitted overall classroom behavior as analyzed through teacher reports (Black & Fernando, 2013). In this study, mindfulness training was used to improve problem behaviors such as attentional issues, impulse control, and general empathy towards others for up to 7 weeks post-intervention. While this study provides promising results toward the effects of intervention programs for low-income adolescents in school, it raises the concern of possible barriers for those of low socioeconomic status.

With this in mind, it is important to consider the boundaries between mental health care need and access to mental health resources. According to Santiago et al. (2012), disadvantaged youth encounter more barriers in gaining access to mental health care due to uncontrollable circumstances such as affordability, transportation limitations, and childcare. There are also issues beyond health care services that impart further hindrances to receiving mental health services. Low-income families are unable to receive appropriate care due to lack of knowledge of available resources, immigration status, and stigmatization against mental health. There are also past experiences and perceptions of patient-clinician interactions that can affect current attitudes and motivations to seek out services. Combinations of these factors increase the risks of not obtaining suitable mental health services and increases in drop-out rates when receiving such services (Santiago et al., 2012). From this information, there is speculation that obstacles such as long waiting lists could add additional hesitation from low-income populations to seek out care.

## **Dialectical Behavioral Therapy**

Dialectical Behavior Therapy (DBT). DBT is a cognitive-behavioral based form of therapy that incorporates acceptance and change into its foundational applications of treatment (Linehan, 1993; Linehan et al., 1993). Originally developed for patients with Borderline Personality Disorder (BPD), DBT has since been adapted for use in a variety of mental health areas such as primary care clinics (Koons et al., 2001) and inpatient programs (Beckstead et al., 2015). DBT's approach on skills developed for acceptance and change have led to advances in the reduction of emotion dysregulation, behavioral impulsivity, and prosocial skill deficits. Treatment in DBT involves four core modules – 1) emotion regulation, 2) interpersonal effectiveness, 3) distress tolerance, and 4) mindfulness – as the basis of treatment. The idea behind these four key components stems from the belief that personality disorders and cognitive distortions are linked to emotion dysregulation and invalidating experiences (Miller et al., 2006). Through reoccurring life stressors, a person develops maladaptive patterns of coping and heightened sensitivity and reactivity of negative emotions. This, combined with invalidating responses toward personal emotional reactions, creates longer periods of emotional recuperation after a stressful event and decreased stress tolerance. Information discussed previously detailing negative outcomes associated between emotion dysregulation and adolescents reveals the justification for the need of evidence-based treatment in dealing with such issues.

**DBT for Adolescents**. Rathus and Miller (2002) created an adaptation of DBT for adolescents (DBT-A), which has been readily adapted for use with children and adolescents with suicidal ideation (SI) (Fleischhaker et al., 2011; Glenn et al., 2019; James et al., 2008), non-suicidal self-injury (MacPherson et al., 2012), suicidal attempts and self-harm (Glenn et al., 2019), hospitalization, depression symptoms (Woodberry & Popenoe, 2008), and increases in

overall well-being (James et al., 2008; James et al., 2011; Woodberry & Popenoe, 2008). Research has also expanded its use toward a variety of mental health disorders including Oppositional Defiant Disorder (ODD) (Nelson-Gray et al., 2006), Bipolar Disorder (BD) (Goldstein et al., 2007), Eating Disorders (EDs) (Safer et al., 2007; Salbach-Andrae et al., 2008), trichotillomania (TTM) (Welch & Kim, 2012), and emotion dysregulation (Miller et al., 2006). These studies have been examined in multiple settings such as juvenile detention centers (Fasulo et al., 2015; Trupin et al., 2002), community clinics (James et al., 2008; Woodberry & Popenoe, 2008), outpatient (Fleischhaker et al., 2011; Goldstein et al., 2007; Nelson-Gray et al., 2006; Rathus & Miller, 2002; Safer et al., 2007), inpatient (Katz et al., 2004; Salbach et al., 2007), residential (Sunseri, 2004), and forensic settings (Dimeff et al., 2007). In some studies, high completion rates were recorded (63-87%) along with adolescents self-reporting DBT skills to be moderately to extremely helpful (Miller et al., 2000). Several studies have reported sustained improvement of well-being of over 8 months to 1-year post-treatment (Fleischhaker et al., 2011; James et al., 2008; Woodberry & Popenoe, 2008). Geddes et al. (2013) and Beckstead et al. (2015) suggest that DBT for adolescents may also have encouraging developments for the treatment of mental health symptoms such as substance abuse (Beckstead et al., 2015) and trauma-related symptomatology (Geddes et al., 2013). More recently, DBT skills have been taught in the context of prevention programming, with some prospect (Burckhardt et al., 2018).

Logic behind the adaptation of DBT for adolescents derives from emotion regulation being the common foundational principle behind mental health symptoms. Scholars claim that DBT is a natural fit for adolescents due to its focus on emotion regulation, which is a common concern for youth with mental health symptoms. MacPherson et al. (2012) discuss that, "all of the behaviors and disorders that have been targeted in studies of DBT for adolescents can be

conceptualized by poor emotion regulation". Emotion dysregulation in adolescents is related to issues such as suicide ideation (Orbach et al., 2007), non-suicidal injury (NSSI) (Adrian et al., 2011; Nock & Prinstein, 2004; Nock et al., 2009), and suicidal acts (Tamas et al., 2007; Zlotnick et al., 1997). Given the role of emotional regulation in psychopathology, teaching core DBT skills may be a useful strategy to prevent and/or manage the same disorders that it successfully treats in adulthood (i.e., suicidal behavior, non-suicidal self-injury, mood disorders, bipolar disorder, and eating disorders).

**DBT** in School Settings. Little research has been done on the efficacy of DBT on adolescents in school-based settings. Past studies have incorporated traditional mental health care facilities including outpatient, inpatient, and residential programs, day programs, and correctional facilities (Fasulo et al., 2015; MacPherson et al., 2012). Although these settings have proved advancement toward the inclusion of DBT in treatment, DBT has yet to be thoroughly evaluated for adaptation in a school setting.

Most studies that have been conducted focus on a specific problem area, such as school attendance, and do not direct attention toward a range of issues, like school attendance, emotional well-being, social skills, and coping, that could affect adolescents. In one study, a brief intervention using DBT skills was found effective in reducing risky behaviors among adolescents (Zapolski & Smith, 2016). Similar results were found for youth engaging in a Disciplinary Alternative Education Program (DAEP) in which students involved in a DBT skills group reported decreases in the number of occurrences of behavioral distress as compared to students not receiving treatment (Ricard et al., 2013). Chu et al. (2015) offer an adaption of DBT in the form of web-based coaching for the specific goal of reducing school refusal. The incorporation of web-based coaching was used to examine effects of adolescent attitudes toward

school. It was determined that this method of intervention provided a unique opportunity for youth and parents alike to receive proper mental health care that, in turn, affected their perceptions about school. Finally, a mindfulness-based intervention program offered in a school environment led to an overall increase in academic performance and stress tolerance (Zenner et al., 2014). Each of the studies point to the potential of DBT skills programs for adolescents. However, they do not include long-term effects of these programs. This study aims to promote the expansion of DBT by examining the preliminary feasibility of a tier 2 intervention program in a school-based setting for at-risk youth in an underserved community.

In sum, youth experience a heightened period of stress and emotional vulnerability during adolescence. Some may develop ineffective coping strategies that may lead to issues in emotion dysregulation, problem behaviors, and internalizing and externalizing symptoms. In relation to adolescents with low socioeconomic status, youth are put at an increased risk to acquire psychopathology. Currently, there is a lack of research behind early intervention programs aimed towards at-risk youth in low-income communities. Previous intervention studies have targeted more specific issues relating to academic performance or coping strategies.

# **Current Study**

Aim 1 – Overall Positive Experience: To assess satisfaction with a tier 2 DBT-based skills intervention that is well perceived among at-risk adolescents residing in an underserved community. It was anticipated that those who received the DBT-based intervention would report strong satisfaction with the intervention. This was analyzed using eight questions from a satisfaction survey administered at the end of each session. Although a qualitative analysis was not an aim of this study, the satisfaction survey included an open-ended question in which participants could provide some qualitative feedback. We will report on these available data.

Aim 2 – Promise of the intervention: To establish if there is promise of effectiveness of a tier 2 DBT-based skills intervention for at-risk adolescents residing in an underserved community in a school-based setting. We examined scores on the Youth Outcomes Questionnaire-Self Report (YOQ-SR). It was anticipated that youth scores on the YOQ-SR would decrease over time ,indicating that the tier 2 DBT-based skills intervention in a school-based setting for adolescents may be a promising intervention.

#### Methods

# **School Setting**

San Bernardino City Unified School District (SBCUSD) resides in Southern California where there is a high need for but lack of access to mental health services. The population of students being served within this school district contain 88.5% who are economically disadvantaged, 27.3% who are English language learners, and 74.0% who are Hispanic.

SBCUSD students consistently perform below standards in both English and Math with 13.6% of its students being chronically absent. Currently, the school district allots one school counselor for each school with each counselor taking on multiple demands including academic counseling, referral services, and crisis management. The school setting used for the purposes of this study, Sierra High School, a continuation high school in SBCUSD, is specifically catered to students who are at-risk of being unable to graduate due to lack of credit completion. Sierra High School holds a Wellness Center where students gain access to academic advising, crisis management, referral resources, and counseling services.

# **Participants**

Inclusion criteria for this study were adolescents who were flagged as having a potential risk for emotion regulation difficulties by the lead school counselor. Students who presented with severe psychosis, active suicidal ideation, or developmental delays were ineligible to participate. Participants (N = 13) consisted of high school students attending Sierra High School where

students attended either an AM (8:00-12:00 PM) or PM (12:00-4:00 PM) session for approximately 4 hours per day from Monday through Friday. Male participants accounted for approximately half of the students (53.8%) compared to females (46.2%). Students' ages were 17 (53.8%) and 16 (46.2%) (M = 16.5, SD = 0.5). Students were Hispanic (53.8%); Black/African-American ethnicity (23.1%), two or more races (15.4%), or other (7.7%). Almost half of participants identified as heterosexual (46.2%); with the other half identifying as other (38.5%) or gay/lesbian/bisexual (7.7%). Participants adverse childhood events included: family history of mental illness (30.8%); family history of drug use (23.1%); history of abuse or violence (15.4%); history of abandonment (15.4%); personal history of substance abuse (15.4%). Participants reported their current academic functioning as being in the "Average" range (84.6%) with students generally passing all classes with a letter grade of D- or higher (60 or above) or "Below Average" range (15.4%) with students generally failing all classes with a letter grade of E+ or below (59 or below). Additional demographic information can be viewed below (see Table 1).

# **Procedures**

All students completed an initial assessment form prior to joining the school. This assessment explored various possible risk factors for emotion dysregulation such as recent death of a friend or family member, self-report of sudden changes in mood or irritability, current suicidal thoughts, and/or homelessness. Those who endorsed at least one of these were flagged and assessed by the lead school counselor for eligibility and willingness to participate in group therapy sessions. Verbal and written assent and consent from caregivers were obtained, and students were assigned to a treatment group. Groups consisted of approximately six students that met on a weekly basis for a period of 50 minutes over the course of 12 weeks. Students who did not provide consent were permitted to attend the groups for clinical purposes and did not

complete research measures. Each week, two co-leaders led a group session at the Wellness

Center of Sierra High School about one of the four core components of DBT (see Appendix A).

Students completed research measures after each group session. Students received various snacks and prizes for attendance, participation, and use of DBT skills.

#### Measures

**SOARing Post-Session Evaluation Form.** The SOARing Post-Session Evaluation Form is a self-report survey measured on a 4-point Likert scale (see Appendix B). This measure was developed for this project and evaluates eight different components of each group session including: 1) overall impression of today's group session, 2) the well-preparedness of the facilitator, 3) the presentation of the activities and information, 4) the encouragement for participation, 5) the clarification of any answered questions, 6) how clear handouts were, 7) sufficient time for discussion, and 8) possessing greater knowledge of the topic covered that day. Each question contains four answer choices to which the individual must respond: 1) I did not like it at all! (1), 2) Meh. (2), 3) I liked it. (3), or 4) I liked it a lot! (4). Higher scores indicate a greater positive experience or overall impression of group sessions and their individual components. Lower scores indicate a more negative impression of group sessions and their individual elements. This evaluation form was used to gain information from participants about their personal reactions toward group sessions as indicators that higher scores will represent preliminary feasibility. Feasibility will be assessed using responses to all eight questions independently to measure overall trends in positive remarks for each session.

Youth Outcomes Questionnaire-Self Report. The Youth Outcomes Questionnaire – Self Report (YOQ-SR) (Lambert et al., 1996) is a shortened, standardized questionnaire of the YOQ for use on children and adolescents ages 12-18 (see Appendix C). Participants respond to

indicate the severity of the presenting problem as they have observed it in the past week on a 5point Likert scale: 1) Never or Almost Never, 2) Rarely, 3) Sometimes, 4) Frequently, and 5) Almost Always or Always. This self-report measure is intended to evaluate six subscales of psychological attributes that include: 1) intrapersonal distress (e.g., "I don't participate in activities that used to be fun."), 2) somatic symptoms (e.g., "I have headaches or feel dizzy."), 3) interpersonal relationships (e.g., "I argue or speak rudely to others."), 4) critical items (such as hallucinations and suicidal ideations – e.g., "I see, hear, or believe in things that are not real."), 5) social problems (e.g., "I cut classes or skip school altogether."), and 6) behavioral dysfunction (e.g., "I have a hard time finishing my assignments or I do them carelessly."). The measure has shown good to very strong internal consistency ( $\alpha = .74-.95$ ) (Ridge et al., 2009; Wells et al., 1996) and good concurrent validity (r = .51-.83) (Lambert et al., 1996; Ridge et al., 2009). The YOQ-SR is highly sensitive and can be used to monitor symptoms on a weekly basis. Higher scores indicate an increase in symptomatology for a combination of any of the six subscales listed above while lower scores indicate a decrease in symptomatology for a combination of any of the six subscales.

# Intervention

SOARing (School-Based Opportunities for Adolescent Recovery) was developed from various core component lessons adapted from the DBT Skills in Schools: Skills Training for Emotional Problem Solving for Adolescents (DBT STEPS-A) (Mazza et al., 2016). Each session focused on one of the four foundational skills and was put into a rotation until each core skill was covered four times. Each session contained 10 minutes of recap from the previous session, one skills training component for 30-40 minutes, and approximately 10 minutes for questions and feedback. Session 1 consisted of a general meet and greet between the co-leaders and the

participants. The co-leaders facilitated introductions, established ground rules and informed youth on the nature of the group structure. In session 2, a mindfulness component was used to inform participants of using wise mind, a balance between emotion mind and reasonable mind, when dealing with everyday tasks. Participants utilized a volcano drawing activity to recreate how emotions may build up over time and eventually explode into either positive or negative reactions. During session 3, validation was used as a tool to emphasize empathy and sympathy. Appropriate phrases and a general discussion on when, how, and why to validate were given. Session 4 entailed using the TIPP (Temperature, Intense exercise, Paced breathing, and Progressive muscle relaxation) skill for managing extreme emotions when faced with intense situations. Ice cubes and a breathing exercise were used to discuss using temperature as a way to regulate extreme emotional reactions. In session 5, the purpose of emotions provided an open discussion on what events may trigger a certain emotion, what thoughts may be associated with a given emotion, what feelings or bodily sensations may occur as a result of the emotion, what consequences may arise with a given emotion, and what can combat negative consequences from happening with each emotion. During session 6, the DEAR MAN (Describe, Express, Assert, Reward, Mindful, Appear confident, Negotiate) skill was used to provide effectiveness in stating what one wants and in saying no. Session 7 consisted of informing participants of the IMPROVE (Imagery, Meaning, Prayer, Relaxation, One thing at a time, Vacation, Encouragement) skill for improving the moment in extreme or negative situations. Participants were encouraged to provide their own examples to relate to each component and how they can apply this in future scenarios. In session 8, the use of Opposite Action provided participants with the opportunity to learn activities that can be done to combat negative reactions to extreme emotions. During session 9, the acronyms FAST (be Fair, no Apologies, Stick to values, be Truthful) and GIVE

(Gentle, Interested, Validate, Easy manner)were given to understand how to preserve self-respect and how to positively interact with others and yourself while also maintaining these relationships. Role plays were leveraged to facilitate constructive interpersonal relations with oneself and with others. Session 10 used the ACCEPTS (Activities, Contributing, Comparisons, Emotions, Pushing away, Thoughts, Sensations) acronym to discuss relevant skills for tolerating sudden, intense and/or painful situations or emotions. An open discussion of past stressful situations and activities to help cope was conducted to facilitate a safe and encouraging environment. In session 11, the term "cope ahead" helped participants prepare for a plan to manage extreme situations and/or emotions as they occur in the future. This was discussed within the context of post-treatment and the ending of group sessions. Finally, session 12 was used as a general check-in for all participants. A comprehensive review of all skills was provided, and a feedback session of how these skills have been implemented in their daily lives was examined. Detailed notes of each session covered is provided in Appendix B.

# COVID-19

Due to the outbreak of COVID-19 and the immediate but necessary quarantine, group sessions were only able to meet on either 2 or 3 separate occasions. Research and clinical work were abruptly terminated, and online group sessions were unable to form. Students faced problems such as having access to the internet or computer, being unable to communicate with researchers outside of school, or they did not have a confidential space in which to attend group sessions. Researchers also encountered the problem of not being able to find a confidential online program in which to conduct group sessions on such a short notice. The results of this study are thus incomplete and are only meant to reflect preliminary efforts to understand if a tier

2 DBT-based skills intervention for at-risk youth in a school-based setting is acceptable, feasible and promising

# **Statistical Analysis**

In addressing the study objectives, scores from the SOARing Post-Session Evaluation Form and YOQ-SR were analyzed using SPSS-26 (Corp, 2017). An ANOVA was conducted to determine the preliminary satisfaction of a tier 2 DBT-based intervention program. A t-test was used to determine if there was any change in YOQ scores from Session 1 to Session 2. As discussed, the COVID-19 pandemic interrupted the trial and thus we do not have post data or a comparison group.

#### Results

Overall Positive Experience. A one-way ANOVA was performed using the SOARing Post-Session Evaluation Form and indicated no significant difference was found between Sessions 1, 2, and 3, F = 0.40, p > .05 (see Table 2). All scores for the SOARing Post-Session Evaluation Form were reported, on average, around a level of 3 ("I like it!) for Session 1 ( $M_1 = 3.28$ ), Session 2 ( $M_2 = 3.44$ ), and Session 3 ( $M_3 = 3.28$ ) (see Table 3). Information gathered from the SOARing Post-Session Evaluation Form revealed that all students consistently rated positive remarks for each session at an average of around 3.28 or at a level of "I liked it," or above. In the open-ended comments sections, participants often stated that the discussion portion of the session being the most enjoyable part about each session while others expressed that they, "liked everything" or that, "there wasn't anything I didn't like." In sum, all participants rated each session as being a positive experience and indicated satisfactory ratings for the tier 2 DBT-based skills program.

**Preliminary Effectiveness.** A t-test found no statistically significant difference between on YOQ-SR scores from session 1 to session 2, t = 0.30, p > .05 (see Table 2).

#### Discussion

The implementation of a tier-2 DBT-based skills program for adolescents residing in an underserved community demonstrated promising results that warrant further investigation.

Outcome data from the SOARing Post-Session Evaluation Form revealed an overall positive impression for implementing a DBT-based skills group therapy for adolescents in a school setting that is consistent with Miller et al.'s (2000) study concluding DBT skills as moderately to extremely helpful for participants. No significant difference was found on the YOQ-SR between sessions 1 and 2. According to the YOQ-SR scoring guidelines, a drop of 10 points on either a subscale or the total score is needed to determine if something is clinically meaningful. It is possible that the completed version of the intervention would have found significant differences on total scores for the YOQ-SR between sessions. The interruption of data collection due to COVID-19 eliminated the opportunity for more specific outcomes. Much like Burckhardt et al.'s (2018) study, DBT skills taught in the context of a prevention program could provide benefits to both mental health and academic performance. Again, continued exploration for this early intervention is recommended in order to determine more concrete results.

# Limitations

The event of the COVID-19 global pandemic and its consequences significantly impacted the original intended intervention outline, data collection, and data analysis. Due to the abrupt closure of the school, there was insufficient time needed to be able to adapt the curriculum to fit into an online context. Many barriers prevented us from adapting Project SOARing in an online format. Some students became caretakers for their younger siblings at home while their parents or caretakers continued to work. Other students did not have a safe place in which to talk or disclose information. Attempts were made to contact all participants to determine their

willingness to continue the DBT based skills program online, but some students did not have a secure line to which they could respond.

Our small sample size was intentional and meant to establish feasibility for DBT-based skills before expanding it to a larger group of students. Ultimately, the pandemic interrupted the study and we discontinued the study after two sessions and thus do not have the post data to indicate preliminary effectiveness.

#### **Future Directions**

In order to provide psychological support to students struggling with emotional dysregulation, the program has been adjusted for online delivery in a classroom setting (universal prevention). This includes shortening the intervention to reflect the shorter duration of class schedule cycles at the continuation high school so that the program lasts for six weeks. Each class must also be taught online where breakout groups may be formed; special attention to confidentiality and comfortability must be monitored continuously. With this in mind, future research will include the preliminary effectiveness of a short-term DBT based skills program taught on an online platform at the universal level. Similar measures will be used to measure various outcomes including emotion regulation, satisfaction ratings, and feasibility. We expect to restart the study at the indicated level (tier 2 prevention) as soon as school reopen at the end of the pandemic.

#### **Conclusion**

Low-income students face both stresses within the home, due to issues such as violence, neglect, and abuse (Foege, 1998), and at school, such as academic performance (Lansing et al., 2017). An emphasis on early interventions is placed on adolescents to limit the amount of academic stress on students (Anderman, 2002) as well as provide coping skills that have lasting

effects up to ten years later. School-based interventions provide a universal outlet where students are able to gain awareness of mental health issues while developing positive coping skills for a wide range of problems. The tier 2 DBT-based skills program described here offers early intervention for low-income adolescents in a school-based setting who may otherwise not have to learn these DBT skills which may be effective in increasing overall well-being (James et al., 2008; James et al., 2011; Woodberry & Popenoe, 2008) especially via the use of emotion regulation skills (Linehan, 1993). SOARing could provide emotional support to adolescents at a time where there is a high risk of emotion dysregulation which could affect academic performance (Ivcevic & Brackett, 2014). The adaptation of Project SOARing in a school-based setting offers the teaching of DBT-based skills in an applicable context that can be then utilized in everyday scenarios for adolescents. It provides the opportunity for adolescents to learn suitable coping strategies that could help prevent severe psychopathology or present as a gateway to appropriate referrals including more intensive DBT group therapy or other psychological services.

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Table 1 Demographic Information of Participants (N = 13)

	Frequency	%	M	SD
Gender				
Female	6	46.2		
Male	7	53.8		
Age			16.5	0.5
16	6	46.2		
17	7	53.8		
Ethnicity/Race				
Black/African American	3	23.1		
Hispanic	7	53.8		
Two or More	2	15.4		
Other	1	7.7		
Sexual Orientation				
Gay/Lesbian/Bisexual	1	7.7		
Heterosexual	6	46.2		
Other	5	38.5		
History of Abuse or Violence				
Yes	11	84.6		
No	2	15.4		
History of Abandonment				
Yes	11	84.6		
No	2	15.4		
Adopted/History of Foster Care				
Yes	0	0.0		
No	13	100.0		
Current Academic Functioning				
Average	11	84.6		
Below Average	2	15.4		
Family History of Mental Illness				
Yes	9	69.2		
No	4	30.8		
Family History of Drug Use				
Yes	10	76.9		
No	3	23.1		
Head Trauma and/or Seizures				
Yes	1	7.7		
No	12	92.3		
History of Substance Use				
Yes	11	84.6		

Current Substance Use		
Yes	0	0.0
No	13	100.0
Current Psychotropic Medication		
Yes	0	0.0
No		100.0

Table 2

Results of Statistics for Total Score Outcome Measures

Outcome Measure	Sum of Squares/Standard Error Mean	df	Mean Square/Mean	Point Estimate	F/t	p
SOARing Post- Session Evaluation Form	0.19	2	0.09	-	0.40	0.68
YOQ-SR	6.00	8	1.78	0.099	0.296	0.78

*Note.* Results of the SOARing Post-Session Evaluation Form were found using an ANOVA test. Results of the YOQ-SR were found using a t-test.

Table 3

Results of Descriptive Statistics for Total Score Outcome Measures and Number of Sessions

Outcome						95% Confidence Interval for Mean		
Measure	Session	N	M	SD	SE	Difference	Minimum	Maximum
SOARing	1	11	3.28	0.54	0.16	[2.92, 3.64]	2.38	4.00
Post- Session	2	11	3.44	0.52	0.16	[3.09, 3.79]	2.50	4.00
Evaluation Form	3	9	3.28	0.36	0.12	[3.00, 3.56]	2.88	4.00
	1	9	36.33	17.76	5.92	[27.94,51.70]	2.00	57.00
YOQ-SR	2	9	38.11	18.00	6.00	[24.28,51.95]	4.00	72.00

Appendix A. DBT Group Protocol

#### Orientation

First Meeting

#### Names/Introduction

Small icebreaker question: What is one thing you're good at/secret talent?

Description of the group, what is DBT (balance of acceptance and change, for those who struggle with relationships, emotion dysregulation)

Limits of Confidentiality

Check in about parent consent

## Review/Develop Rules

Go off of poster on wall but allow students to come up with their own

# Orient them to Group Structure/Timing Every Week

Remind them to come straight from previous class

Check-in review of previous skill, and new skill each week

#### Mindfulness

Week 1

Check-in

#### Wise Mind

Emotion Volcano Drawing Activity – draw your own emotions that you stuff in the volcano and what happens when it explodes

# Interpersonal Effectiveness

Week 2

Check-in

Review Wise Mind

#### Validation

Activities to help build rapport - clip from inside out w/bing bong's wagon

#### Distress Tolerance

Week 3

Check-in

Review Validation

TIPP

Bring in ice and do a breathing exercise/PMR with a script

#### **Emotion Regulation**

Week 4

Check-in

Review TIPP

#### Purpose of Emotions

Write a list of emotions on the bored with the emotion, action indicated, how we communicate it, function of emotion

# Interpersonal Effectiveness

Week 5

Check-in

Review Purpose of Emotion

#### DEARMAN

Ask them to give their own example of something they want to ask for Integrate the idea of priorities in the description of the skill (self, goal, relationship)

# Distress Tolerance

Week 6

Check-in

Review DEARMAN

IMPROVE

Use skills from the book as examples for each letter

# **Emotion Regulation**

Week 7

Check-in

Review IMPROVE

Opposite Action

Use worksheet

# Interpersonal Effectiveness

Week 8

Check-in

Review Opposite Action

FAST and GIVE

Role Plays

#### Distress Tolerance

Week 9

Check-in

Review FAST and GIVE

ACCEPTS

Use worksheets in DBT for Adolescents book

# **Emotion Regulation**

Week 10

Check-in

Review ACCEPTS

Cope Ahead

How to use this skill moving forward from the group?

# Appendix B. SOARing Post-Session Evaluation Form

# **SOARing Post-Session Evaluation Form**

Name:		Session #		Date: _		
			C			**
I did no	t like it at all! Meh.		I liked it.		11	iked it a lot!
Please (	answer the following questions using	the scale above.	,			
1.	Overall, I enjoyed today's workshop.		1	2	3	4
2.	My SOARing coach was well-prepared	l <b>.</b>	1	2	3	4
3.	The activities/information was presen	ted well.	1	2	3	4
4.	The activities encouraged my participation	ation.	1	2	3	4
5.	If I had any questions, they were answ	vered clearly.	1	2	3	4
6.	The session handouts were clear.		1	2	3	4
7.	There was enough time for discussion		1	2	3	4
8.	I have greater knowledge of the topic	covered today.	1	2	3	4

# Appendix C. Youth Outcomes Questionnaire - Self Report

	ach statement carefully.  Overlathe board accounted y describes the past week.		DIRECTIONS:  Read cash satument corefully.  Read cash statument corefully.  1 I result to be alone more than others my same age.  2 I have heraldaches or feel dizzy.  3 I don't participate in activities that a set to be fon.  4 I regue or speak roulely to others.  5 I have more fears than others my same age.  6 I cut classes or skip school altogether.  7 I coaperate with rules and especiations of adults.  8 I have a hard time flanking my savigaments or I do them cardevily.  9 I compilia about things that are unfair.  10 I have trouble with coanly alton or diarries.  11 I have trouble with coanly alton or diarries.  12 I worry and can't get thoughts out of my mind.  13 I have a hard on a rervous  14 I have a hard on a rervous  15 I feet andous or arround  16 I talk with others in a friend by way  17 I am tense and easily startled (jumpy)  18 I have trouble with withing or messing my pants or bed  19 I physically sight with adults  10 I tee, bear, or believe in things that are not real  21 I have the stand or unknoppy  22 Loes alcobol or drugs  23 I am disorganized (or I can't seem to get organized)  24 I telloy my relationships with family and friends  25 I am ad or unknoppy  26 I have a hard time trusting friends, family members, or other adults  27 I that a hard time trusting friends, family members, or other adults					
easily make wanself look as heal by or unhealthy as you wish. Elease do not do that. If you are as accurate as possible it is more thirdy that you will be able to receive the help that you are so king.			DIRECTIONS:					
self look as healthy or unhealthy as you wish. Elease_do_pot do_that. If you are as accurate as possible it is more likely that you will be able to recove the help the statement can be accurately described the past week, now true that statement is during the past £ days.  - Ober's dury one answer for each statement and crase unwanted.	Check only one answer for each statement and trace terrando		PLEASE COMPLETE BOTH SIDES					
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