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Depression During Adolescence: An Examination of Treatment Outcomes Through an Intersectional Lens

Myesha Morgan
University of South Florida

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Depression During Adolescence:
An Examination of Treatment Outcomes Through an Intersectional Lens

by

Myesha Morgan

A thesis submitted in partial fulfillment
of the requirements for the degree of
Education Specialist in Curriculum and Instruction
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Department of Educational and Psychological Studies
College of Education
University of South Florida

Major Professor: Kathy Bradley-Klug, Ph.D.
Joshua Nadeau, Ph.D.
John Ferron, Ph.D.

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Abstract

Major Depressive Disorder is a common mental health disorder, with studies suggesting its potential to lead to academic and social-emotional impairment in youth (Alegria, Vallas, & Pumariega, 2011). Although psychological treatments for this disorder have been studied for decades, prior to recent years little was known about the generalizability of treatment effectiveness to non-European samples (Bernal, Bonila, & Bellido, 1995; Bernal & Scharron-Del-Rio, 2001). Data suggest that racial/ethnic minority youth experience more severe depression when diagnosed with the disorder and are less likely to access mental health services. Behavior Activation (BA) is a treatment approach found to be effective for severe depressive symptoms, but there is a dearth in the literature showing its effectiveness with youth and racial/ethnic minorities (Dimijidan et al., 2006). Additionally, prior examinations of treatment effectiveness have largely focused on reductions in symptom severity and have excluded other aspects, such as quality of life (Krause, Bear, Edbrooke-Childs, & Wolpert, 2019). The current study examined the relationship between ethnicity, gender, and treatment outcomes for 409 adolescents (ages 13-21) who had undergone BA treatment at behavioral health clinics throughout the U.S. Treatment outcomes included depressive symptomology and quality of life following treatment. Additionally, the study examined the potential moderation of gender on the relationship between ethnicity and treatment outcomes. Preliminary analyses revealed that for the overall sample, levels of depressive symptomology and quality of life significantly improved after BA treatment. Multiple regression analyses testing for interactions were conducted to determine if the demographic variables of interest (i.e., ethnicity, race, and/or gender) predicted

quality of life or depressive symptomology following treatment. Results suggested there were no significant differences between ethnic, racial, or gender groups for quality of life or depressive symptomology following treatment. However, when testing for interaction effects, African American/Black females had significantly higher depressive symptoms post-treatment. The sample included a small number of Black females, therefore, these results should be generalized with caution. This study adds to the literature that BA is an effective treatment for adolescents, specifically those in intensive treatment settings (i.e., residential, partial hospitalization, intensive outpatient). Future research should include more ethnically/racially and gender diverse samples of adolescents and consider a qualitative approach in understanding patient's perspectives on and satisfaction with BA as a treatment.

Chapter 1

Introduction

Statement of the Problem

By 2030, depression will be the number one cause of disease burden worldwide and currently it is the leading cause of disability (World Health Organization [WHO, 2013, 2018]). In the United States, depression impacts 7.1% and 13.3% of adults and adolescents, respectively (Substance Abuse and Mental Health Services Administration [SAMSHA, 2017]). During adolescence, depression continues to be a leading risk factor for youth suicide and depressed adolescents are more likely to engage in maladaptive social practices, take part in substance use, and have low academic performance when compared to non-depressed peers (Bridge, Goldstein, & Brent, 2006; Kovacs, Goldston, Obrosky & Bonar, 1997; Diego, Field, & Sanders, 2003; Owens, Stevenson, Hadwin, 2012).

Despite the impact of depression on youth, adolescents of color are less likely to receive mental health services than their White peers (Kodjo & Auinger, 2003; Wu et al., 2002). Prior studies also have compared the help-seeking behaviors of non-Latinx Whites to ethnic minorities and found ethnic/racial minorities are less likely to access mental health services (Cook, Barry, & Busch, 2013). More specifically, African Americans and Hispanics with any mental illness were less likely to use outpatient, prescription medication, or mental health services overall when compared to Whites. However, African Americans and Hispanics were more likely to use inpatient services (Substance Abuse and Mental Health Services Administration [SAMSHA, 2012]).

Ethnic minority children represent a growing and significant proportion of the population in the U.S., with approximately 25.5% identifying as Hispanic/Latinx, 15.2% as African American, 5.5 % as Asian Americans, and 1.6% as Native American or American Indian (Vespa, Armstrong, & Medina, 2018). Studies demonstrate that culminating risk factors, such as psychosocial stressors, racism/discrimination, and economic stress disproportionately impact ethnic minorities and these risk factors can increase the chronicity of clinical depression (Williams et al., 2007; Watkins, Green, Rivers, & Rowell, 2007). Data from the National Health and Nutrition Examination Survey (2009-2012) indicated prevalence rates for severe depression among Black and Latinx youth were higher than their non-Hispanic White peers (Pratt & Brody, 2014). Researchers have followed up with depressed youth after a 10-year period and found as adults they were more likely to report a higher rate of smoking, physical health problems, migraine headaches, and physical inactivity (Naicker, Galambos, Zeng, Senthilselvan, & Colman, 2013). Additionally, for both subclinical and clinical levels of depression, studies have shown an increased mortality risk (Cuijpers & Smit, 2002). Thus, it is clear that pediatric onset of a depressive disorder is linked to greater recurrence and a host of poor outcomes during adulthood, showing the need for early, efficacious intervention (Gotlib & Hammen, 2008).

Cognitive-behavioral and interpersonal approaches to therapy are most studied in the treatment of depression (Zhou et al., 2015). However, studies of cognitive therapy have shown for treatment-resistant depression this therapeutic approach may be less effective (Dimijidan et al., 2006). Dimijidan et al. (2006) found Behavioral Activation (BA) to be more effective than cognitive approaches to therapy in more severely depressed adult patients. However, there is a dearth in the literature evaluating the outcomes of psychological interventions, such as BA, on diverse youth diagnosed with MDD. The literature is even more scarce evaluating more intensive

levels of clinical treatment (e.g., partial hospitalization, intensive outpatient; Pina, Polo, & Huey, 2019). The current study addressed three primary goals. First, given the paucity of literature examining BA for adolescents, this study assessed the effectiveness of BA among a sample of adolescents seeking treatment for depression. Second, the current study aimed to extend beyond unidimensional treatment outcomes focused solely on improvements in symptomology and incorporates quality of life as an outcome (Krause, Bear, Edbrooke-Childs, & Wolpert, 2019). In the psychological treatment literature, moderators for treatment are under explored. More specifically, the consideration of culture is often neglected. The third aim of this study was to fill this gap by testing effectiveness of BA on a sample of ethnically diverse and gender diverse adolescents and examining differences in responses between and within groups.

The purpose this chapter is to introduce depression as a clinical disorder and the current state of the literature related to treatment outcomes among adolescents treated for depression. Further, this chapter provides an overview of the current study's theoretical underpinnings and contributions to the literature.

Diagnostic Markers for Depression

Major depressive disorder. Major Depressive Disorder (MDD) is characterized as depressed or irritable mood and/or a loss of interest or pleasure (DSM-V-TR; American Psychiatric Association [APA], 2013). Additional symptoms found in the DSM include insomnia or hypersomnia, loss of energy, diminished ability to think or concentrate, or recurrent thoughts of death. A major depressive episode is a period of depression that lasts more than two weeks, where individuals may experience a myriad of depressive symptoms and can receive a diagnosis (DSM-V-TR; American Psychiatric Association [APA], 2013). In addition, these

symptoms must represent a change in prior functioning. However, these symptoms cannot be clearly attributed to another medical disorder (APA, 2013).

Epidemiology of Depression

As children transition into adolescence, there is a sharp increase in prevalence of major and minor depression as rates rise from around 3% to 14% (Cohen, Cohen, Kasen, & Velez, 1993). Additionally, studies have revealed between 22% and 60% of adolescents reported depressive symptoms, but were below the clinical threshold for diagnosis, showing the wide prevalence of symptomology (Kubik et al., 2003). More recent studies investigating the 12-month prevalence of major depressive episodes suggests an increase from 8.7% in 2005 to 11.3% in 2014 in adolescents of the U.S. general population (Mojtabail, Olfson, & Han, 2016).

Ethnic/racial differences in prevalence. Studies investigating the comparison of epidemiology of depression among ethnic groups have rendered inconsistent findings. Saluja et al. (2004) uncovered that 29% of American Indian youths reported depressive symptoms compared to 22% of Hispanic, 18% of White, 17% of Asian American, and 15% of African American youths. Kleykamp and Tienda (2005) found higher incidence of depression among Latinx adolescents (11%) when compared to Black and White adolescents, after adjusting for familial structure and socioeconomic status. In this study, differences in Hispanic and White adolescent girls' self-reported depression, stress, and self-esteem were highly correlated with socioeconomic status (Kleykamp & Tienda, 2005).

Gender differences. During adolescence, sex differences also emerge. Generally, females experience higher levels of subclinical and clinical symptoms of MDD as compared to males as shown by cross-sectional and longitudinal studies (Wade, Cairney, & Pevalin, 2002; Hankin, Mermelstein, & Roesch, 2007). Some studies have found differences in the manifestation of the

disorder including increased weight or appetite disturbances, worthlessness, guilt, and/or, suicidality in females as compared to males (Lewisohn & Essau, 2002; Lewisohn, Rohde, & Seeley, 1998; Yorbik, Bitmaher, Axelson, Williamson, & Ryan, 2004). Studies also have illuminated potential considerations that may explain the increased vulnerability of adolescent girls for depression. Physical changes as a result of puberty can lead to dissatisfaction with body image among girls and early maturing girls are at greater risk for depression than their peers (Copeland et al., 2010; Stice, Hayward, Cameron, Killen, & Taylor, 2000). Coping styles for girls also may contribute to increased risk for depression as girls are more prone to coping in a passive, ruminative manner, which is greatly associated with depressive symptomology (Hilt, McLaughlin, & Nolen-Hoeksema, 2010). Transgender adolescents also are at an increased risk for depression and estimates of the lifetime prevalence of depression among transgender women have been reported as high as 62% (Clements-Nolle, Marx, Guzman, & Katz, 2001). This increased risk may partially be due to the emotional consequences of societal marginalization, family rejection, discrimination, and transphobia in school and home settings (Oransky, Burke, & Steever, 2018).

Treatment Outcomes Among Ethnic Minority Youth

Although psychological treatments for depression have been studied for decades, prior to recent years, little was known about the generalizability of treatment effectiveness to non-European samples (Bernal, Bonila, & Bellido, 1995; Bernal & Scharron-Del-Rio, 2001). Pina, Polo, and Huey (2019) completed a meta-analysis evaluating studies published between 1960 and 2018 on psychosocial treatments for mental health problems among ethnic minority adolescents and found 27 studies focused on Hispanic/Latinx youth, 19 studies focused on outcomes of African Americans, whereas only one study focused on Asian Americans. There

were no studies with an adequate representation of Native American adolescents. Among treatments examined for depression, none were found to be well-established and interpersonal therapy was the only psychosocial treatment with more than one study showing effectiveness with adequate representation of Hispanic and Latinx adolescents.

Quality of Life

Quality of life has been conceptualized in a number of ways in the literature. The World Health Organization describes quality of life as a person's subjective view of their position in life, in the context of their culture and values. Mendlowicz and Stein (2000) conceptualized quality of life as the levels of personal enjoyment and satisfaction an individual experiences in their life. Psychopathology is often associated with decreased quality of life, although this relationship is complex (DSM-V-TR; American Psychiatric Association [APA], 2013). This may be due to distress and mismanagement of symptoms, impact on self-efficacy and self-esteem, and relationships (Connell, Brazier, O' Carhain, Lloyd-Jones, & Paisley, 2012). The Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire (PQ-LES-Q) is a measure assessing the degree to which one experiences enjoyment and satisfaction in multiple domains of life (Endicott, Nee, Yang, & Wohlberg, 2006). Although this measure has been validated with youth receiving outpatient treatment for depression, further research is needed surrounding quality of life for depressed youth (Endicott, Nee, Yang, & Wohlberg, 2006). More specifically, the few existing studies of racially/ethnically diverse youth with depression have primarily focused on reductions in symptomology, showing the need for studies evaluating quality of life. (Gunlicks-Stoessel & Mufson, 2011; Ngo et al., 2009, Tompson, Sugar, Langer, & Asarnow, 2017). Additionally, the absence of psychopathology does not equate to the presence of wellness and

studies have shown not all youth who experience clinical levels of psychopathology have low levels of quality of life (Bastiaansen, Koot, & Ferdinand, 2005; Cowen, 1994).

Symptom Severity

Depressive symptoms can range from subclinical levels, to minor or major depression (Beck et al., 2011). Studies have shown depressive symptom severity can also predict suicidal ideation (Lopez et al., 2020). In the current study, the Quick Inventory of Depressive Symptomology (QIDS) is used, which assesses DSM-IV symptom domains (e.g., sad mood, sleep disturbance, concentration) for MDD and symptoms are rated on a scale from least to most severe. In prior studies, symptom severity or changes in symptomology have been the primary outcomes of the psychological treatment literature for adolescent depression (Krause, Bear, Edbrooke-Childs, & Wolpert, 2019).

Theoretical Framework

This study is guided by three different, and yet complementary theoretical frameworks. The first theory guiding this examination of BA for ethnic/racially and gender diverse youth is the developmental psychopathology model which focuses on the complex psychobiological and environmental stressors that can contribute to the development of psychopathology during adolescence (Eme, 2017). According to the developmental psychopathology model, psychobiological vulnerabilities interact with and influence a child's environment (e.g., home, school). On the other hand, a child's environment can interact with pre-existing psychobiological vulnerabilities. The current study draws on this model in that ethnic/racial and gender diverse youth often experience unique environmental stressors that may influence the severity of depressive symptoms during adolescence (Williams et al., 2007). Additionally, youth with

maladaptive coping responses may contribute to environmental stressors that can lead to the development of depressive symptoms (Ryder et al., 2012).

Intersectionality Theory, coined by Kimberlé Crenshaw (1989), poses that being a part of multiple minoritized groups (e.g., African American, female) can have unique disadvantages and stressors, which in turn can shape development across life stages (Ghavami, Katsiaficas, & Rogers, 2016). Intersectional theorists seek to expand beyond singular examinations of a minoritized person's identity and explore how discrimination and oppression impacts one's experiences (Crenshaw, 1989). This theory has more recently been applied to study health and wellbeing outcomes in population health research (Bauer, 2014). Within mental health research, intersectional theory has been used to explore outcomes within and between gender and ethnic/racial groups. As it relates to this current study, intersectionality theory will be applied to treatment outcomes among ethnic/racial and gender diverse adolescents to examine the outcomes of specific subgroups (e.g., African American transwomen).

The third theoretical approach is the Behavioral Theory of Depression (Lewinsohn, 1974) which posits that a lack of positive reinforcement from the environment and/or reinforcement for depressed behavior (e.g., avoidance) leads to symptoms related to depression. This model has been expanded to also include both negative and positive reinforcement of depressive symptoms, which continue to perpetuate the depressive cycle. Therefore, Behavior Activation (BA) as a treatment was developed to assist depressed persons engage in pleasant, routine, and valued activities to receive more positive reinforcement from their environments (Lewinsohn, Biglan, & Zeiss, 1976). In the current study, the Behavioral Theory of Depression underlies the treatment approach (BA) for youth who sought treatment for depression.

Research Questions

The purpose of this study was to examine the efficacy of BA for gender and ethnically/racially diverse youth. An examination of quality of life and symptom severity following treatment occurred to answer the following research questions:

- (1) Do ethnicity/race or gender predict change in quality of life among adolescents seeking treatment for depression?
- (2) Do ethnicity/race or gender predict change in symptom severity among adolescents seeking treatment for depression?

Contributions to the Literature

Extant literature focuses solely on reductions in symptom severity and has excluded other aspects of outcomes, such as quality of life (Krause, Bear, Edbrooke-Childs, & Wolpert, 2019). The current study addressed gaps in the literature by: (1) examining both symptom severity and quality of life following treatment, (2) examining these outcomes among diverse youth who have undergone residential, partial hospitalization, and intensive outpatient treatment. Implications of the current research study may inform clinicians working with diverse youth and increase the quality of care youth receive.

Definition of Key Terms

Depression/depressive symptoms. Used interchangeably to describe the combination of symptoms characterized in the DSM-V as the presence of “a sad, empty, or irritable mood, accompanied by somatic and cognitive changes that significantly affect an individual’s capacity to function” (DSM-V; American Psychiatric Association, 2013, p. 155).

Adolescents. Defined as persons aged 11-21 years (Futures & American Academy of Pediatrics, 2008; Arpawong, Oland, Milam, Ruccione, & Meeske, 2013; Hardin, Hackell, & Committee on Practice and Ambulatory Medicine, 2017). These ages are grouped into the following ranges: early adolescence (11-14), middle adolescence (15-17), and late adolescence (18-21).

Ethnicity/race. Terms used to describe groups of persons of a shared descent. These terms represent social markers that are cultural and not biological in origin (Quintana et al., 2006). In the current study, these terms will be used interchangeably between ethnic/racial groups.

Gender. Gender as used in this study differs from sex as it is a social construct rather than a biological label. Therefore, individuals may identify with a gender category other than their biological sex (Westbrook & Saperstein, 2015). Examples of gender identities include female, male, transgender, or non-binary.

Treatment outcomes. Described as the measurement of an individual's mental health as a result of an intervention (Kwan & Rickwood, 2015). In this study, treatment outcomes refer to changes in self-reported depressive symptoms or quality of life following treatment.

Chapter 2

Literature Review

The purpose this chapter is to provide a comprehensive review of extant literature related to treatment outcomes among diverse adolescents with depression. This chapter includes an introduction and conceptualization of adolescent depression, followed by a review of risk factors related to the disorder, the impact on quality of life, and details of various treatment outcomes. Finally, this chapter focuses on treatment outcomes following psychological interventions specifically for ethnically/racially diverse adolescents.

Adolescent Depression

Overview. In earlier years, depression was understood as a disorder impacting only adults. However, more recently depression is recognized as a recurrent and persistent disorder also impacting adolescents with similar symptomology as seen in the adult population (Gotlib & Hammen, 2008). In fact, early onset of the disorder in adolescence has been linked to more severe and chronic depressive episodes 5 years later (Hammen, Brennan, Keenan-Miller, & Herr, 2008). Depression during adolescence is associated with a multitude of poor outcomes including intimate partner violence, school dropout, substance abuse, and unwanted pregnancy (Hammen, 2009). The next sections in this chapter will first introduce the reader to how depression develops, then discuss its impact on quality of life, and finally a review of the current literature surrounding therapeutic approaches to treating depression will be provided.

Etiology. Several studies have focused on illuminating the biological, psychological, and social contributors that in concert with environmental vulnerabilities, may contribute to the

etiology of a depressive disorder. The developmental psychopathology model emphasizes that there is a constant interaction between the environment and an individual over the lifespan which may contribute to the development of pathology (Beauchaine & Hinshaw, 2017). Therefore, the developmental psychopathology model considers how changes in the lifespan can lead to an emergence of symptoms and conceptualizes psychopathology as influenced by child-level characteristics like temperament, biological factors such as genetic traits, and environmental contributors (i.e., life stress; Eme, 2017).

Genetic vulnerabilities. Although no single biological cause has been identified for the reasons for the development of depression, and candidate gene studies have been difficult to replicate, several contributing vulnerabilities have been uncovered. Twin studies suggest moderate heritability of depression, with more severe depressive symptoms in parents resulting in increased heritability for children (Beauchaine & Hinshaw, 2017). Additionally, low levels of the neurotransmitter norepinephrine have been linked to depression (Pennington, 2002). Despite this preliminary evidence, specific genes involved in the pathophysiology of the disorder and the regulation of neurotransmitters are difficult to replicate and therefore are not included in current theories of the neurobiology of Major Depressive Disorder (Beauchaine & Hinshaw, 2017).

Cognitive Processes

Research surrounding cognitive processes related to depression suggest maladaptive schemas, negative self-perception likely influenced by significant adults in the youth's life, and negative attributional styles may place youth at risk for major depression (Jacobs, Reinecke, Gollan, & Kane, 2008). Although no theoretical model captures all risk factors, Beck's Cognitive Theory of Depression (1967) poses that those with the disorder or those at-risk for development of the disorder have developed schemas that contribute to negatively biased views of themselves,

the world, and the future. Consistent with this theoretical framework suggesting abnormal cognitive processes in depressed youth, studies have revealed increased rumination, dysfunctional attitudes, as well as attention and memory biases in children and adolescents (Alloy et al., 2001; Gibb, 2014). Furthermore, Hopelessness Theory coined by Abramson, Metalsky, and Alloy (1989) introduced additional cognitions that contribute to depression. These include low sense of efficacy particularly following stressful life events, in that individuals tend to view negative events as having negative consequences and view the causes of these events as global and stable (Jacobs et al., 2008). These findings suggest an apparent link between cognitive processes and an increased risk for depression.

Familial factors. Family studies indicate rates of Major Depressive Disorder in children and adolescents are elevated if youth have parents and/or siblings with the disorder (Klein et al., 2001; Klein, Lewinsohn, Seeley, Rohde, & Olino, 2005; Kovacs, Goldston, Obrosky, & Bonar, 1997; Weissman et al., 2006). In general, maladaptive parenting styles likely indirectly contribute to increasing other cognitive factors that increase risk for depression (McLeod, Weisz, & Wood, 2007). Consistent with Beck's cognitive theory of depression, high levels of criticism from parents, inconsistency, rejection, and control have been associated with higher levels of cognitive distortions and dysfunctional attitudes in adolescents (Alloy et al., 2001; Bruce et. al., 2006; Garber & Flynn, 2001; Liu, 2003). In a study examining depressive symptoms among adolescent boys with the short 5HTTLPR allele, lower levels of family support were associated with increased depressive symptoms (Li, Berk, & Lee, 2013). Studies of both clinical and community samples have shown additional associated parenting traits in depressed youth when compared to their nondepressed peers. These include increased parental criticism, intrusiveness, and maltreatment (Gibb, 2014; McLeod, Weisz, & Wood, 2007; Yap & Jorm, 2015).

Social vulnerabilities. Coyne's (1976) Interpersonal Theory of Depression posits that the characteristics and behaviors of depressed persons can lead to disruption in social relationships and lead to negative responses from others. Research shows a cycle in that depressed individuals experience difficulties maintaining relationships, which contributes to maladaptive social-cognitive processes. These cognitive processes lead to difficulties in forming and maintaining peer relationships, which in turn predicts increases in depressive symptomology (Abela & Hankin, 2008; Witvliet, Brendgen, Van Lier, Koot, & Vitaro, 2010). More recent studies indicate children who are depressed also report poorer peer relationships, more rejection from peers, and greater victimization than nondepressed children. These negative appraisals of self and negative appraisals of relationships have been associated with genetic influences of depression, which can contribute to the development of the disorder (Lau, Belli, Gregory, & Eley, 2014). In addition, researchers theorize interpersonal difficulties play an increased role in depression as the importance of peer and romantic relationships become more salient during adolescence (Rudolph & Flynn, 2014).

Life stress. The Diathesis-Stress Model of psychopathology elucidates the interaction of environmental stressors and genetic predisposition that may lead to the development of psychopathology (Colodro-Conde et al., 2018). Stressful life events can potentially alter brain processing and can cause changes in gene expression (Lohoff, 2010). Stressful life events also are associated with the onset of depressive episodes and can increase of depressive symptoms during adolescence (Grant et al., 2014). For example, in a study of university students in China, greater acculturative stress was associated with less emotional regulation, which in turn increased depressive symptoms (Cheung, Bhowmik, & Hue, 2019). Therefore, an individual may

have a genetic predisposition to a disorder; however, the disorder may not develop until an individual experiences cumulative or significant environmental stress.

Impact on Quality of Life

Depressive symptomology is multifaceted, impacting several aspects of functioning, which can in turn lead to decreased quality of life. For adolescents, these impacts may be seen at school, during extracurricular activities, or at home by caregivers. The following section provides a review of the ways in which symptoms impact various life domains.

Academic. Several studies have aimed to reveal the relationship between depressive symptoms and academic outcomes using multiethnic samples. Results have consistently suggested a correlation between higher depressive symptoms and lower academic achievement (Hishinuma et al. 2006; Repetto, Caldwell, Zimmerman, 2004). Quiroga, Janosz, Bisset, and Morin (2013) reported a relationship between depressive symptoms and dropping out of school, which was mediated by negative perceptions of one's academic competence. Additionally, in a sample of Chinese children, researchers found academic difficulties were positively correlated with depression (Chen et al. 1995). Among a group of Native Hawaiian adolescents, results indicated that higher depression symptoms lead to lower grade point averages in a sample of high school students (Hishinuma, Chang, McArdle, & Hamagami, 2012). Similarly, Fletcher (2009) found that an increase in depressive symptomology was directly related to a greater likelihood of dropping out. Berndt et al. (2000) found support for early onset of Major Depressive Disorder decreasing educational attainment and future annual earnings showing the long-term impact of the disorder.

Social. Social impairment and the inability to fulfill normal social roles are important indicators that can contribute to an individual's depression (Hirschfield et al., 2000). Researchers

have uncovered associations between Major Depressive Disorder and social anhedonia, which can be described as an individual experiencing less pleasure from social interactions and social affiliation (Atherton, Nevels, Moore, 2015; Germine, Garrido, Bruce, Hooker, 2011). Even following remission, difficulties in social functioning can persist up to three years (Rhebergen et al., 2010). Naicker and colleagues (2013) found that adolescent depression strongly predicted low levels of social support in adulthood. Other longitudinal studies have found low levels of social support persist until 10 years following depression during adolescence (Naicker, Galambos, Zeng, Senthilselvan, & Colman, 2013). High levels of negative social behavior, defined as aggressive behaviors and negative support-seeking predicted high levels of depression (Bell-Dolan, Reaven, & Peterson, 1993). Among depressed adolescents, studies have shown higher levels of substance use compared to non-depressed adolescents; however, studies suggest increased social support reduced the influence of depression on substance use (Mason, Mennis, Russell, Moore, & Brown, 2019). Coyne (1976) found that individuals who interacted with depressed persons reported feeling significantly more depressed, hostile, and anxious after the interaction.

Emotional. Durbin and Shafir (2008) found emotion regulation for depression tends to occur through rumination and dispositional emotional regulation. Rumination can be defined as a symptom of depression characterized by recurring thoughts that are past or present oriented which focus on the experience of depressed mood or negative events (Durbin & Shafir, 2008). Rumination has been found to predict executive functioning impairments in youth (Connolly et al., 2014). Dispositional emotional regulation is the notion that depressed persons engage in excessive emotion regulation strategies, like self-deprecating comments, negative self-talk, worry, or rumination (Durbin & Shafir, 2008). Emotional suppression is another method of

emotion regulation depressed individuals utilize. Emotional suppression involves reducing one's reactivity to external stimuli or overcontrolling one's emotional expression. These efforts to appear to be functioning adequately may in turn limit social interactions and hinder the development of coping skills (Durbin & Shafir, 2008). Studies of the emotional experiences related to depression have consistently uncovered strong associations with negative feelings such as shame and linked several determinants of shame (i.e., occupation of a low status position, persistent social conflict, social rejection) to a depressed affect (Kim, Thibodeau, Jorgensen, 2011).

Behavioral

Longitudinal studies have linked adolescent depression to later health-risk behaviors (HRBs) such as alcohol abuse and smoking. Naicker and colleagues (2013) found at baseline that depressed adolescents had a higher rate of daily smoking, which persisted until after follow-up. Additionally, researchers found a bidirectional relationship between cigarette smoking and depression in that smoking predicted severe depression and severe depression predicted increased smoking behaviors (Naicker, Galambos, Zeng, Senthilselvan, & Colman, 2013). Severe depression also predicted an increase in the odds of substance use. Specifically, Health-Risk Behaviors (HRBs) predicted severe depression and severe depression predicted HRBs including smoking, alcohol and drug use, unsafe sexual practices, and risk for obesity (Bai et al., 2018).

Summary

The etiology of depression has been researched extensively, with many studies pointing to an integration of biological, environmental, and personal factors contributing to its development. Genetically, more research is needed to better understand the triggers for

depression. However, at a practical level, some researchers argue that understanding the biological underpinnings of the disorder will not help in identifying those at risk. Additionally, these studies often cannot be replicated. The current state of the literature does suggest that depression commonly occurs when there are chronic or acute stressors present in one's life along with low levels of social support and maladaptive coping strategies.

Overview of Treatment Approaches

Researched therapeutic approaches for depression are largely cognitive, behavioral, and interpersonal. Although cognitive-behavioral treatments are the most researched, the literature suggests cognitive behavioral therapy (CBT) is equally efficacious as other approaches (e.g., interpersonal, behavioral) in the treatment of youth depression (Weisz, McCarty, & Valeri, 2006). However, preliminary evidence suggests for severe depressive symptomology some approaches fare better than others, specifically Behavior Activation (BA; Jacobson, Martell, & Dimidjian, 2001). This section aims to provide an overview of therapeutic interventions commonly used to treat depressive symptomology and provide a basis for the status of the literature concerning the treatment used in this study, BA.

In earlier years, treatment for depression in youth was centered on cognitive and behavioral therapy adapted from adult treatment models (e.g., Kovacs, 1981), with even clinical studies based on adaptations of adult measures (Beck, 1967, 1976; Lewinsohn, 1974; Lewinsohn, Hoberman, Teri, & Hautzinger, 1985). The first reviews of treatment outcomes for depression in youth included studies for at-risk children who reported elevated symptoms that did not meet diagnostic criteria recruited from school settings, along with children who met diagnostic criteria for depression (Kaslow & Thompson, 1998). Of the adolescent studies, a majority ($n=6$) of the treatments used were cognitive-behavioral, with only one study implementing family-based

systemic therapy, and one study utilizing interpersonal therapy for depressed adolescents (IPT-A). Results from the Kaslow and Thompson (1998) study suggested all treatments were effective in significantly reducing depressive symptoms and the reduction of symptoms were maintained from 4 weeks to 2 years.

Cognitive Behavioral Therapy. Cognitive Behavioral Therapy (CBT) is considered one of the first-line treatments for depression and the most studied form of psychotherapy for the disorder. However, more recent literature has shown that effect sizes for CBT may have been overestimated in early studies (Cuijpers et al., 2013; Klein, Jacobs, & Reinecke, 2007). CBT approaches involve youth learning how to identify, evaluate and challenge their own negative cognitions, while engaging in behavioral techniques to increase positive reinforcement from the environment (Huberty, 2011). In CBT's use with adults, there has been no significant difference in the reduction of depressive symptomology in comparison to other therapeutic approaches or medications (Cuijpers et al., 2013). In a meta-analysis of randomized controlled trials for treatments of pediatric depression, CBT and Interpersonal Therapy (IPT) were the only two treatments with significant outcomes compared to most treatment as usual and waitlist conditions at post-treatment and follow-up (Zhou et al., 2015).

Behavioral Activation. Behavioral Activation (BA) was designed as an alternative treatment for depressed adults who were unsuccessful with CBT (Jacobson, Martell, & Dimidjian, 2001). Behavioral Activation (BA) utilizes functional analysis to determine the cause of the depressed person's behaviors and then the depressed person is taught to recognize avoidance patterns that maintain their symptoms (Huberty, 2011). Through this process, engagement in pleasant, routine, and valued activities is encouraged to alter the depressed person's behavior. After reviewing 34 randomized controlled trials, researchers concluded BAT

showed significantly greater effectiveness when compared to control conditions, and no significant difference in effectiveness when compared to CBT (Mazzucchelli, Kane, & Rees, 2009). Fewer studies have examined the effectiveness of BAT for adolescents. One study, a randomized controlled trial of the Adolescent Behavioral Activation Program (A-BAP) yielded statistically significant findings in the improvement of depressive symptoms and global functioning (McCauley et al., 2016).

Interpersonal Therapy. Interpersonal therapy (IPT) is based on the assumption that depression occurs within an interpersonal context, impacts functioning in relationships, and this impact on social relationships leads to a depressed mood (Huberty, 2012). IPT involves psychoeducation, generating a list of interpersonal problem areas, and addressing social challenges through improving use of problem-solving and communication skills. In adults, IPT has been found to be just as effective as other forms of psychotherapy (i.e., CBT). Research also has shown pharmacotherapy and IPT combined lessened rates of relapse, when compared to pharmacotherapy alone (Cuijpers et al., 2011). IPT-A was developed specifically for adolescents, with research indicating it is an efficacious treatment for greater symptom reduction and improvement in overall functioning in depressed adolescents when compared to treatment as usual (Mufson et al., 2004). IPT-A has been found to be significantly effective in reducing depressive symptoms across studies regardless of modality (individual therapy vs. group therapy) with a large effect size ($d = 1.18$; Mychailyszyn & Elson, 2018).

Pharmacotherapy. For depressive disorders, selective serotonin reuptake inhibitors (SSRIs) are considered the first line of pharmacotherapy treatment and norepinephrine reuptake inhibitors (SNRIs) are considered secondary or tertiary treatments. However, studies have revealed the mean effects of antidepressants for depression are lower in comparison to other

disorders in youth, like anxiety and obsessive-compulsive disorder (Locher et al., 2017). For adult depression, a greater number of pharmacological treatments have proved to be more effective than placebo (Ryan, 2005). These include tricyclic antidepressants, SSRIs, and SNRIs. For adolescents, an SSRI, fluoxetine, is the only FDA-approved treatment for pediatric depression and the only medication with multiple replications demonstrating its effectiveness over placebo (Ryan, 2005). Meta-analytic studies also have evaluated acceptability and have found fluoxetine to be associated with fewer dropouts from treatment (Zhou et al., 2020). Recent systematic reviews indicate fluoxetine in conjunction with cognitive behavioral therapy is the most efficacious treatment for adolescent depression. However, use of medication as a singular treatment was not as effective as CBT alone (Zhou et al., 2020).

Treatment Outcomes for Major Depressive Disorder in Youth. In the literature examining treatment outcomes among clinically depressed youth, two broader theoretical orientations are prevalently seen throughout: cognitive behavioral therapy (CBT) and interpersonal psychotherapy. Recent meta-analytic studies have regarded CBT and interpersonal psychotherapy as “well-established interventions” for depressed adolescents as they have shown to consistently be superior to placebo by at least two independent treatment teams (Weersing, Jeffreys, Do, Schwartz, & Bolano, 2017, p. 12). However, among empirically supported treatments for Major Depressive Disorder, behaviorally oriented treatments such as problem-solving therapy and behavioral activation therapy/contingency management also are increasingly represented. Overall, outcomes were largely focused on reductions in depressive symptomology, whereas few studies examined other variables, such as sleep quality, self-esteem, interpersonal and overall functioning (Krause, Bear, Edbrooke-Childs, & Wolpert, 2019).

In the Treatment of Adolescents with Depression Study (TADS; March et al., 2004), a randomized control trial was conducted on the effectiveness of CBT in comparison to a placebo, medication alone, and CBT and medication combined. Four hundred thirty-nine adolescents aged 12 to 17 years with a primary DSM-IV diagnosis of MDD were included in the study and were randomly assigned to one of the four conditions. Of these participants, 73.8% self-classified themselves as White; 12.5% self-classified as Black; and 8.9% identified themselves as Hispanic. Outcomes were measured using total scores from the Children's Depression Rating Scale-Revised (CDRS-R; Poznanski & Mokros, 1995) and the Clinical Global Impressions Improvement score (CGI; Guy, 1976). Additionally, adolescent self-report measures were used, including the Reynolds Adolescent Depression Scales (RADs; Reynolds, 1987) and the Suicidal Ideation Questionnaire-Junior High School Version (Reynolds, 1987). Results indicated the combined and CBT alone conditions were most effective. However, in many of the analyses CBT did not significantly differ from the placebo control and the response rate was substantially lower than prior studies evaluating CBT. In terms of response to each of the conditions, CBT combined with medication rendered the most positive response and medication alone outperformed the CBT alone condition. However, the study was limited by its exclusion of students who were at high risk for suicidal behavior and substance use. Additionally, study patients were aware of the treatment they were receiving in the CBT condition. Lastly, time with the clinicians or expectancy effects were not equated across treatment conditions. Following the original TADS study, researchers completed an additional longitudinal study assessing outcomes at 12, 18, and 36-weeks (March et al., 2007). The findings were consistent with the original study in that combination therapy outperformed all other treatments, with medication alone following. However, researchers did find suicidal ideation decreased among all conditions, but

less so with medication alone. While the TADS study showed promise for combined medication and cognitive-behavioral treatment, there was a lack of adequate representation for ethnically/racially diverse youth.

Asarnow and researchers (2009) conducted a randomized controlled trial examining treatments for adolescents resistant to selective serotonin reuptake inhibitors (SSRIs), in which they were randomly assigned to one of the four conditions: an alternative SSRI, an alternative SSRI plus CBT, venlafaxine, or venlafaxine plus CBT. Of the adolescents who participated, 84% were White, 5% Hispanic/Latinx, 5% Biracial, 3% Black, 2% Asian, and 2% other and all had moderately severe and chronic depression. Measures used were the CDRS-R (Poznanski & Mokros, 1995) and Beck's Depression Inventory (BDI; Beck, Steer, & Carbin, 1988) to assess depression severity and the CGI-Improvement score to assess clinical improvement. In this study, the CBT-combined condition had larger effects on older adolescents who identified as White. Additionally, researchers uncovered several predictors associated with nonresponse: depression severity, hopelessness, higher baseline levels of suicidal ideation, functional impairment, and youth-reported family conflict. The limitations of this study included the lack of ethnic/racial diversity in the sample. The design of the study did not include a placebo or CBT-alone condition limiting the ability to understand if the results were due to CBT alone or CBT combined with the change in medication.

Weisz and colleagues (2009) investigated outcomes for 57 youth age 8-15 years with DSM-IV depressive disorders. Differences in outcomes were examined among youth receiving usual care, described as mostly psychodynamic or family approaches, and youth receiving a CBT program entitled, Primary and Secondary Control Enhancement Training. Youth included in the study were largely from low-income families and were diagnosed with either major depressive

disorder (MDD), dysthymic disorder (DD), and minor depressive disorder (MinDD). Participants in the study also had multiple comorbidities: 60% were identified as having oppositional defiant disorder, 47% attention deficit hyperactivity disorder, 39% separation anxiety disorder, 19% generalized anxiety disorder, and 14% of the sample met criteria for conduct disorder. In terms of measures, the Diagnostic Interview Schedule for Children- IV (DISC-IV; Shaffer et al., 2000) was used, along with the Children's Depression Inventory (CDI; Kovacs, 1992), CDI-Parent Form, and the Child Behavior Checklist (CBCL; Achenbach, 1991) to assess symptoms and diagnoses. Youth were randomly assigned to therapists and the two treatment conditions: usual care or CBT. Following the study, 75% of participants no longer met criteria for a depressive disorder. This finding was consistent across participants who met criteria for MDD, DD, and MinDD. Both treatment groups saw participants drop significantly to sub-clinical levels following treatments. Findings indicated CBT and UC differed in treatment duration and session attendance. Families in the UC group had more session cancellations and more weeks receiving treatment (39.26 weeks and 25.20 weeks for UC and CBT, respectively). Taking these results into account CBT may reduce treatment cost and shorten treatment duration in comparison to other approaches as demonstrated by UC. However, this study has limitations, including the mixed profiles of the participants with several comorbidities and the small sample size ($n=57$).

Rohde, Waldron, Turner, Brody, and Jorgensen (2014) explored sequence effects of two interventions for depressive and substance use disorders, Coping with Depression (CWD) and Functional Family Therapy (FFT). Additionally, researchers examined if MDD moderated treatment effects for the group of adolescents. Participants ($n=170$) were diagnosed with a DSM-IV depressive disorder (54% MDD and 18% dysthymia) and a non-nicotine substance use disorder and were between ages 13-18 years. Participants were randomized to one of the

following treatment sequences: (a) FFT followed by CWD (FFT/CWD), (b) CWD followed by FFT (CWD/FFT), or (c) an intervention combining FFT and CWD (Coordinated Treatment; CT). Outcome measures used included the Schedule for Affective Disorders and Schizophrenia for School Age Children–Present and Life Version (K-SADS-PL; Kaufman et al., 1996) and the Children’s Depression Rating Scale-Revised (CDRS; Poznanski & Mokros, 1995). Results suggested that providing the CWD treatment first resulted in greater substance use reductions following treatment and at follow-up. For depressive symptoms, no specific treatment sequence contributed to more rapid depression recovery and 47% experienced depression remission during treatment during follow-up 60% had reached remission. The current study was limited in that it did not have a wait list or control group; therefore, it cannot be determined if the treatments provided would be better than usual care or no treatment. Additionally, participants were recruited from a center specifically focused on substance use disorder treatment and lastly, a large majority of the sample was male, 61% were non-Hispanic White, and other psychiatric conditions were not assessed. No additional information regarding ethnic/racial diversity of the sample was reported.

Treatment Outcomes of Diverse Youth. Aligning with the growing population of ethnic minority youth in the United States, recent meta-analytic studies suggest there are a growing number of studies examining psychosocial treatment outcomes for minority youth, but the types of treatments for this population remains small (Pina, Polo, & Huey, 2019). Furthermore, studies examining clinical depression among racially and ethnically diverse youth receiving treatment are even more scant. Largely, the literature investigates the effectiveness of IPT and CBT on African American, Hispanic, and Latinx adolescents.

Rosselló and Bernal (1999) completed a study examining depressive symptoms, self-esteem, social adjustment, behavioral problems, family emotional involvement, and criticism prior to, and after, treatment in 71 adolescent participants (ages 13 to 17 years) with 100% identifying as Puerto Rican and diagnosed with DSM depression or dysthymia. In terms of treatment, participants were randomized to individual CBT, IPT, or waitlist conditions. Both IPT and CBT conditions included one-hour individual therapy sessions, once a week for a 12-week period. Parents were assessed pre-treatment, post-treatment, and at a 3-month follow-up with the CBCL-P. Additional outcome measures included the CDI, Piers-Harris Children's Self-Concept Scale (PHSCS; Piers, 1984), and the Social Adjustment Scale for Children and Adolescents (SASCA; Beiser, 1990). As measured by the CDI, both IPT and CBT significantly lowered depressive symptoms in participants at post-treatment and follow-up in comparison to those in the control group. Functionality post-treatment was 82% for those in the IPT group, whereas it was 59% for those in the CBT group. Significant increases in self-esteem also were reported among participants in the IPT group in comparison to the control.

Rosselló, Bernal, and Rivera-Medina (2008) conducted a study examining the relationship between outcomes and intervention format (group or individual IPT and group or individual CBT) in youth with depression. Their sample consisted of 112 adolescents ranging in age from 12 to 18 years referred from a school in Puerto Rico between 1996 and 1999. Participants were included if they met DSM-III-R criteria for MDD, scored 13 or higher on the CDI, or were deemed by a clinical interviewer to be impaired. Assessments were given pre- and post-treatment and included the Child Behavior Checklist (Achenbach, 1991), Adolescent (CBCL-A; Achenbach, 1983) and Parent version (CBCL-P; Bird et al., 1987), the CDI, SASCA and the Spanish Diagnostic Interview Schedule for Children (DISC-2.1; Bravo, Woodbury-

Farina, Canino, & Rubio-Stipec, 1993). Findings indicated participants who were assigned to both the individual and group CBT conditions significantly improved in depressive symptoms and improved in self-concept in comparison to those in the IPT group. For CBT and IPT no differences were found between individual and group formats.

Ngo et al. (2009) examined racial differences in outcomes among youth receiving a Youth Partners in Care intervention, which combines CBT and medication. Participants in this study ($n = 418$) were ages 13-21 years and identified as White, Latinx, or African American. In order to be selected for the study youth had to meet two criteria: (1) participants had to endorse criteria for major depression or dysthymia from the Composite International Diagnostic Interview (CIDI; World Health Organization, 1997) and a total score of 16 or higher on the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), or (2) participants had a CES-D score of 24 or higher. Results suggested racial differences in reductions of symptoms, with significant reductions in depressive symptoms among African American adolescents, but not White or Latinx youth. Black adolescents also were more likely to use specialty mental health care (i.e., psychologists, psychiatrists, therapists) at the six-month follow-up. Among the Latinx group, there was a significant improvement in satisfaction with mental health care.

Gunlicks-Stoessel and Mufson (2011) examined if reductions in symptomology predicted remission among depressed adolescents. Their sample ($n = 63$) was majority Latinx (74.6%), African American (14.3%), Asian American (1.6%) and 9.5% other. Participants were randomly assigned to 12 sessions of IPT-A or a treatment as usual (TAU) condition at the school-based clinic, which therapists categorized as psychodynamic. Assessments were conducted by a psychologist or social worker blind to the patient's treatment condition at baseline and weeks 4,

8, 12, and 16 or at early termination. The measures included the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1967) and the K-SADS (Kaufman et al., 1996). Reductions in HRSD scores were consistently greater across all weeks for adolescents in the IPT-A condition. Researchers also found participants in the IPT-A group who achieved a reduction in HRSD scores of at least 16.2% by week 4 had a strong chance of achieving remission by week 16, further illustrating early reduction in symptoms predict treatment outcomes.

Tompson, Sugar, Langer, and Asarnow (2017) randomized adolescents ($n = 134$) to 15 sessions of family-focused therapy (FFT) and individual supportive therapy (IP) over four months. Participants were ages 7-14 years and included 51% of White youth, 15% Hispanic, 26% African American, and 8% Other. Raters were blind to the intervention assignment and administered the KSADS to determine diagnoses, the Child Depression Rating Scale-Revised (CDRS-R; Poznanski & Mokros, 1995) to assess depression severity, and the Children's Global Assessment Scale (CGAS; Shaffer, Gould, & Brasic, 1983) to determine overall functioning. Results indicated that FFT produced significantly greater reductions and remissions in participants' CDRS-R score compared to IP. Parents also reported being satisfied with FFT more so than patients who were in the IP group. A limitation of this study was that it was underpowered and could not detect moderator effects, specifically treatment group by race/ethnicity interactions.

McGlinchey, Reyes-Portillo, Turner, and Mufson (2017) looked at the relationship between sleep quality, depressive symptoms, and treatment outcomes among 63 adolescents diagnosed with a depressive disorder. The sample was largely female (84%) and Hispanic (71%). The KSADS (Kaufman et al., 1996) was used to assess current diagnoses on the basis of DSM-IV diagnostic criteria, while depressive symptoms and symptoms of sleep-disturbance were

assessed using the Hamilton Rating Scale for Depression (HRSD) and the Beck Depression Inventory (BDI-II). Additionally, interpersonal functioning was assessed with the Social Adjustment Scale–Self-Report (SAS-SR; Achard, 1995). Treatment conditions included IPT-A and treatment as usual (TAU). A large majority (65%) of participants indicated difficulties with sleep at baseline. However, neither of the treatment conditions led to improvements in sleep. Results did indicate sleep disturbance was associated with and predicted increased depressive symptoms and interpersonal stress. Lastly, researchers found the effects of treatment were significant for the HRSD scores, but not for the BDI-II or the SAS-SR. Given that this study was comprised of largely Latinx females, it was included in the literature review. However, differences in outcomes between race/ethnicity or gender were not reported for the measures used.

Summary

In general, variations of CBT and IPT were successful in reducing symptom severity. Other variables considered such as self-esteem, social adaptation, functionality, and sleep varied in response to treatment, with CBT increasing self-concept and social adaptation in Puerto Rican adolescents and IPT-A not improving sleep (Rosselló, Bernal, & Rivera-Medina, 2008). Other studies found variations in treatment response by ethnic or racial origin, with only African American youth experiencing significant reductions in depressive symptoms (Ngo et al., 2009). However, in largely Hispanic studies examining both IPT-A and CBT, depression severity did decrease (Rosselló & Bernal, 1999; Rosselló, Bernal, & Rivera-Medina, 2008; McGlinchey, Reyes-Portillo, Turner, Mufson, 2017). Of the studies examining treatment outcomes among adolescents with depression, none examined treatment outcomes of youth who have undergone treatment in a residential setting. Furthermore, findings are inconsistent in African American and

Hispanic Latinx adolescents' response to treatment, and other racial groups, such as Asian Americans and Native Americans, remain underrepresented. Regarding gender, studies used a binary conceptualization of gender (i.e., male and female) and did not include gender diverse youth (i.e., nonbinary or transgender). Tompson, Sugar, Langer, and Asarnow (2017) found neither gender nor race moderated the effects of treatment. Gunlicks-Stoessel and Mufson (2011) noted their largely female sample may be due to female adolescents being more likely to seek help than adolescent boys. In sum, more information is needed regarding treatment variability across gender with only preliminary data surrounding the relationship between gender and treatment outcomes for diverse youth.

Chapter 3

Methods

The purpose of this study was to empirically examine the efficacy of Behavior Activation on diverse adolescents' depressive symptoms and quality of life in an intensive treatment setting. The archival data utilized in this study were collected as part of the routine intake and discharge procedures at a behavioral health facility. This chapter first describes the study participants, setting, and the measures used for the outcome variables of interest. Next, details of the study procedures are shared. This chapter ends with a presentation of the proposed statistical analyses.

Participants

Participant data used in this study were from patients who received services at behavioral health facilities throughout the United States. Patients who were referred to and received treatment for depression at this facility typically had levels of impairment related to depression that significantly impacted their daily functioning. At the facility, participants received treatment in one or more of the following levels of care: residential (24 hours/day, 7 days/week), partial hospitalization (6 hours/day, 5 days/week) or intensive outpatient (3 hours/day, 5 days/week) to address clinically significant depressive symptoms and functional impairment. Participants included in the study were part of one of the following racial/ethnic groups: African American or Black, Hispanic or Latinx, or European American or White. Data were from participants between 11 and 21 years of age, who had a primary or secondary diagnosis of Major Depressive Disorder and received Behavior Activation (BA) treatment for depression.

Exclusion Criteria. Participant data that were excluded from this study included patients who did not complete outcome measures at the time of data collection.

Completion of a power analysis using G*Power software indicated that to discern a small correlational effect size of 0.20 at an alpha level of 0.05, the minimum number of participants needed in the total sample was 244 (power = 0.80).

Setting. Data used for this study were retrieved from a larger database maintained through a behavioral health clinic. Residential care at this clinic involved patients working with a multi-disciplinary team, staying at the facility long-term and receiving daily therapy. Partial hospitalization programming (PHP) allowed patients to receive treatment for 6 hours each weekday, attending groups and meeting with providers, then returning home for the remainder of the day. Intensive outpatient programming (IOP) was the lowest level of intensive treatment the facility provided and allowed patients to receive treatment for 3 hours of each weekday, with an emphasis upon utilizing the relatively longer period of each day outside of programming to generalize learned skills and minimize the potential for relapse.

Patients completed a standardized array of measures, at admission, weekly throughout treatment, and upon completion of treatment. These measures provided an indication of treatment response, as well as informed practice and contributed to the continued monitoring of overall patient outcomes. Data in the current study were collected as a part of this procedure to assess for symptom reduction and improved quality of life following treatment at this clinic.

Behavioral Activation Treatment. The treatment received by participants in this study was Behavioral Activation (BA). A structured set of procedures was followed in this clinic when BA was implemented, beginning with psychoeducation regarding conceptualization of depression and behavior activation as a treatment model. This included the patient completing a behavioral

chain analysis, which involved them noting the antecedents and consequences to a given problem behavior (e.g., isolation, self-harm, rumination, avoidance). With a behavior specialist, each adolescent then identified a series of activities they found as enjoyable, routine, and valued, and structured a hierarchy of these activities to complete. Homework was regularly assigned and included practice of hierarchy activities introduced in session. Additionally, patients were asked to utilize a tracking tool to monitor symptoms and activity completion. A troubleshooting form also was given to adolescents to assist them in addressing challenges that may occur when completing their individualized behavioral activation hierarchy. Subsequent sessions introduced a series of skills to lower rumination, increase assertiveness, and manage anxiety. Treatment also included procedures to prevent relapse by maintenance of behavior change, this involved reflecting on activities in treatment the patient found helpful and creating a daily schedule with routine, pleasant, and valued activities. Patients also planned scenarios ahead that would indicate warning signs, and steps to engage in that involved distraction and problem-solving potential roadblocks.

Research Design

A non-experimental correlational design was used to address the research questions of the current study, which sought to understand the relationship between race/ethnicity, gender, and treatment outcomes. The research questions were answered via the analysis of collected measures of depressive symptom severity, pediatric quality of life, and the admissions screening interview for demographics.

Dependent variables for this study included depressive symptomology post-treatment, as well as ratings of quality of life following treatment. Independent variables included were patient demographics including race/ethnicity, as well as gender identity.

Measures. A total of three measures were included as part of the data collection: the Admissions Screening Interview, the Quick Inventory of Depressive Symptomology, and the Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire. A descriptive overview of each of these instruments follows.

Admissions Screening Interview. The Admissions Screening Interview (AGI) was developed by clinicians at the behavioral health facility and was administered by an intake specialist before the start of treatment. The primary purpose of this interview was to collect descriptive information on the patient and family, as well as information regarding prior treatment, including their length of stay and the level of treatment (inpatient, outpatient, partial hospitalization, etc.). Patients were asked to identify their gender at birth, gender identity, and their pronouns. Patients also were asked to identify their ethnicity, race, education (i.e., highest grade or degree completed), employment status, and age. For this interview, questions were generated from the interview responses and the number of items to be completed was dependent upon the responses of the patient at admission.

Quick Inventory of Depressive Symptomology. The purpose of this measure is to assess depressive symptom presence and severity. This measure is derived from the 30-item Inventory of Depressive Symptomology (IDS) (Rush et al., 2003). The Quick Inventory of Depressive Symptomology (QIDS) has 16-items on the self-report and clinician-rated formats (see Appendix B). Studies suggest high internal consistency ($\alpha = .86$) and high correlations between the IDS and the QIDS ($r = .96$). The Hamilton Rating Scale for Depression consists of 21-items ($\alpha = 0.88$) and was shown to be highly correlated with the QIDS ($r = .86$).

Items on this measure include ratings in the previous seven days. Total scores can range from 0 to 27, with scores of 5 or lower indicative of no depression, scores from 6 to 10

representing mild depression, 11 to 15 indicating moderate depression, and 16 to 20 reflecting severe depression. Total scores above 21 indicate a very severe depression. Items on the QIDS coincide with DSM-IV criteria domains, which include 1) sad mood; 2) concentration; 3) self-criticism; 4) suicidal ideation; 5) interest; 6) energy/fatigue; 7) sleep disturbance (initial, middle, and late insomnia or hypersomnia); 8) decrease or increase in appetite or weight; and 9) psychomotor agitation or retardation (Rush et al., 2003). Within each domain, the patient selects a score from 0 to 3, with higher scores reflecting greater symptoms. For the purpose of this study, the total score was used to compare outcomes, using data from the self-report form.

Pediatric Quality of Life and Satisfaction Scale. The purpose of this measure is to assess the extent in which children and adolescents experience enjoyment and life satisfaction in different domains including home and school (Endicott, Nee, Yang, & Wohlberg, 2006). The measure includes 15 items and allows for five response options ranging from “very poor” to “very good” (see Appendix A). The scale allows for a minimum score of 14 and a maximum score of 70. Higher scores indicate greater enjoyment and satisfaction in life.

The Pediatric Quality of Life and Satisfaction Scale (PQ-LES-Q) was derived from the Quality of Life and Satisfaction Scale, which has been validated as a highly reliable and valid measure for adults. Cronbach’s alphas for the PQ-LES-Q at screening, baseline, and endpoint were 0.87, 0.90, and 0.89, respectively, showing high internal consistency as was the test-retest intraclass correlation coefficient of reliability ($r = 0.78$). The PQ-LES-Q had a moderate correlation with the Children’s Global Assessment Scale ($r = .36$) and the Children’s Depression Rating Scale ($r = 0.45$) (Endicott, Nee, Yang, & Wohlberg, 2006).

Procedures

This study was a secondary data analysis of existing data from the behavioral health clinic. Descriptive and inferential analyses were conducted to address the research questions, with the individual participants being the units of analysis. Once the study proposal was approved by the thesis committee, an application for approval was submitted to the University of South Florida Institutional Review Board (USF IRB) and the IRB of the behavioral health clinic. The IRB of the behavioral health clinic approved the study and the University of South Florida review board did not consider the current study Human Subjects Research due to no HIPAA identifiers being present. A copy of this determination was sent to the IRB of the behavioral health clinic and a data request was made to the clinic for the specific data needed to address the research questions. Data use agreements were signed by the PI and all committee members. The de-identified data were then sent to the study PI over a secure server onto a password-protected laptop with an encrypted hard drive. Once the data were received, the PI reviewed the Excel document to ensure that the data received were consistent with the data request and searched for any missing data. If data were missing for any of the patients, these patients were excluded from the analyses.

Data Analyses

Research question one. Do ethnicity/race or gender predict change in quality of life among adolescents seeking treatment for depression? To examine treatment outcomes, data from the Pediatric Quality of Life and Satisfaction Scale were used. To determine if ethnicity/race and gender predict quality of life, regression analyses were conducted for the demographic variables. For each regression analysis, predictor variables were ethnicity, race (African American/Black, Hispanic/Latinx, or European American/White)

and gender (e.g., male, female, transgender, nonbinary). Within the model, quality of life at intake was controlled for and entered as a predictor variable. To test for interaction effects, dummy coded variables for race and gender, and ethnicity and gender were entered into the model as predictors. In the regression analyses, quality of life post-treatment was entered as an outcome variable.

Research question two. Do ethnicity/race or gender predict change in symptom severity among adolescents seeking treatment for depression? To examine treatment outcomes, data from the Quick Inventory of Depressive Symptomology were used. Analyses included regression analyses to investigate the potential relationship between ethnicity, gender, and symptom severity. To determine if ethnicity/race and gender predicted symptom severity, separate regression analyses were conducted for each demographic variable. For each regression analysis, predictor variables were ethnicity/race (African American/Black, Hispanic/Latinx, or European American/White) and gender (e.g., male, female, transgender, nonbinary). To test for interaction effects, dummy coded variables for race and gender, and ethnicity and gender were entered into the model as predictors. To control for symptom severity at intake, symptom severity was entered into the model as a predictor. In the regression analyses, symptom severity following treatment was considered an outcome variable.

Ethical considerations. Given this study used pre-existing data, precautions were taken to minimize a potential breach in confidentiality. Data extracted from the database were de-identified prior to being given to the PI to maintain the anonymity of all participants. Additionally, prior to the analysis of data, IRB approval was sought from both USF and the behavioral health clinic. As the current study involved secondary data analysis, there was no

direct benefit to the participants. Findings from the study may generate new knowledge and provide a better understanding of the relationship between ethnicity/race, gender, and treatment outcomes.

Chapter 4

Results

The purpose of this study was to examine the efficacy of Behavioral Activation (BA) on diverse adolescents' depressive symptoms and quality of life in an intensive treatment setting. Data were collected as part of routine intake and discharge procedures at a behavioral health facility. Research questions were as follows:

1. Do ethnicity/race or gender predict change in quality of life among adolescents seeking treatment for depression?
2. Do ethnicity/race or gender predict change in symptom severity among adolescents seeking treatment for depression?

This chapter presents the findings from the current study. First, the preliminary analyses of the data are discussed followed by the correlational analyses among variables to examine the relationship between ethnic/racial and gender identity as it relates to depressive symptom severity and quality of life post-treatment. Results from the regression analyses using ethnicity/race, gender, quality of life or symptom severity at intake are presented for each outcome variable (i.e., symptom severity post-treatment and quality of life post-treatment). Results evaluating group level differences with regard to the relationship between ethnicity, race, and gender also are presented.

Preliminary Analyses

The original dataset included 1,202 participants who were part of BA treatment at behavioral health clinics throughout the U.S. Patients with multiple visits or patients who had

been a part of multiple treatment programs (e.g., residential and partial hospitalization) were not included to prevent their observations from being considered multiple times within the data set. As a result, 500 patients were initially removed as a result of this first review.

Data collected from adolescents who were part of BA treatment and had survey responses on the QIDS and the PQ-LES-Q were reviewed. Participants without completed scores for the outcome measures were not included ($n = 106$). The current study examined Caucasian/White, Hispanic/Latinx, or Black/African American adolescents, therefore participants who were Asian ($n = 22$), Mixed ($n = 18$), Native American or Pacific Islander ($n = 5$) were excluded from the analyses. Finally, only 9 participants identified as transgender and/or non-binary and their responses were coded as missing data and excluded from the analyses due to small sample size. Based on the need to eliminate some of the patients' data from the analyses, the final sample contained 409 participants.

A summary of descriptive statistics can be found in Table 1. In regard to ethnicity, 7.1% of patients identified as Hispanic and 92.9% identified as Non-Hispanic. Of the 409 participants, 97.3% identified as European American/White, 2.7% as African/American/Black. Regarding gender, 67.5% of participants identified as female, and 32.5% identified as male. Participant ages ranged from 13 to 21, with the mean age being 19.38 ($SD = 1.3$). The percentages of patients who were in residential care, partial hospitalization, and intensive outpatient were 51.6 ($n = 211$), 30.8 ($n = 126$), 17.6 ($n = 72$), respectively. The most common primary diagnoses were recurrent, severe Major Depressive Disorder for 44.3% of patients ($n = 181$) and recurrent, moderate Major Depressive Disorder for 12% ($n = 49$). For secondary diagnoses, the most frequent diagnoses among the sample were Generalized Anxiety Disorder, which was 36.4% ($n = 149$) and Social Anxiety Disorder which was 14.2% ($n = 54$).

Table 1*Demographic Variables from the Admission Screening Interview*

Demographic Characteristic	<i>n</i>	%
Gender		
Male	133	32.5%
Female	276	67.6%
Ethnicity		
Non-Hispanic	380	92.9%
Hispanic	29	7.1%
Race		
White	398	97.3%
Black	11	2.7%

As mentioned in chapter 3, responses on the Pediatric Quality of Life and Satisfaction Scale (PQ-LES-Q) can range from “very poor” to “very good”, with total scores ranging from 14 to 70 and higher scores indicating greater enjoyment and satisfaction in life. The mean total PQ-LES-Q score for the sample before treatment was 47.69 ($SD = 16.24$) and at post-treatment was 64.14 ($SD = 16.37$). Total scores from the Quick Inventory of Depressive Symptomology (QIDS) can range from 0 to 27, with scores of 5 or lower indicative of no depression, scores from 6 to 10 representing mild depression, 11 to 15 indicating moderate depression, and 16 to 20 reflecting severe depression. Total scores of 21 or above indicate very severe depression. The mean total QIDS score for participants before treatment was 14.38 ($SD = 5.59$) indicating moderate depression. Following treatment, the mean QIDS score was 7.67 ($SD = 4.74$) indicating

mild depression Table 2 illustrates the mean responses for the QIDS and PQ-LES-Q pre- and post-treatment.

Table 2

Summary of PQ-LES-Q and QIDS scores pre- and post-treatment

Measure	Pre-treatment		Post-treatment	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
QIDS	14.38	5.59	7.67	4.74
PQ-LES-Q	47.69	16.24	64.14	16.37

Note. QIDS= Quick Inventory of Depressive Symptomology, PQ-LES-Q= Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire

A paired samples t-test was completed to compare means for the PQ-LES-Q and QIDS before and after treatment for the overall sample. There were significant improvements in quality of life following BA treatment, when comparing pre- and post- PQ-LES-Q scores; $t(408) = 18.994, p < 0.001$. An additional paired samples t-test was completed to compare means for QIDS scores pre- and post-treatment. There also was a significant reduction in depressive symptoms following BA treatment; $t(408) = 24.45, p < 0.001$. These results indicate that overall, there was a significant improvement in depressive symptoms and quality of life following BA for adolescents in this sample.

Correlational analyses. Pearson product moment correlations were conducted among all key variables in the study (see Table 3). Among the demographic variables, race and ethnicity were not significantly correlated with the PQ-LES-Q or QIDS or scores following treatment. Among the outcome variables, gender was negatively correlated with post-QIDS scores ($r = -.113, p < .05$). This result suggests that there was a significant negative correlation between participants' gender identity and depressive symptoms following treatment. Race, ethnicity, and

gender were represented as three binary variables with White, Non-Hispanic, and Male dummy coded as 1 and Black, Hispanic, and Female coded as 0 for the analyses.

Table 3

Correlations between Predictors and Outcome Variables

Variables	1	2	3	4	5	6	7
1. Race	1						
2. Ethnicity	-.046	1					
3. Gender	-.046	-.012	1				
4. Pre-QIDS	.028	.048	-.174**	1			
5. Post-QIDS	-.005	.019	-.113*	.433**	1		
6. Pre-PQ-LES-Q	-.072	-.049	.095	-.692**	-.375**	1	
7. Post-PQ-LES-Q	.035	-.002	.043	-.261**	-.671**	.423**	1

Note. ** $p < .01$ * $p < 0.05$. QIDS= Quick Inventory of Depressive Symptomology, PQ-LES-Q=

Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire

Regression Analyses

Assumptions. Prior to the regression analysis violations to the normality, homoscedasticity, and linear relationship assumptions were determined using residual analyses of charts and scatterplots. Multicollinearity was not present among the variables as evidenced by visual analysis of scatter plots. Residuals analyses for the data set did reveal that outliers were present in the data set. However, given the large sample size, the data were robust to these values.

Research question one. Multiple linear regressions were conducted to determine the relationship between race, ethnicity, and quality of life post-treatment for this sample of depressed adolescents. The Pre-PQ-LES-Q score was entered as a predictor to control for quality of life before treatment, as well as ethnicity, race, and gender. Post-LES-Q scores were entered

into the regression model as the outcome. The results of the regression model were not statistically significant for any of the demographic predictor variables (see Table 4). Predictor variables were all entered at the same time and in the same step in the regression analyses. These results suggest that among the current sample female and male adolescents did not significantly experience different levels of quality of life following treatment. Additionally, race and ethnicity, were not significant predictors of quality of life following treatment.

Table 4

Unstandardized and Standardized Regression Coefficients for Predicting Quality of Life from Race, Ethnicity, and Gender

Predictor Variable	B	SE	Standardized Beta	<i>p</i>	R ²
Race	6.76	4.56	.067	.139	.184
Ethnicity	1.38	2.87	.022	.632	
Gender	.204	1.58	.006	.897	
Pre-PQ-LES-Q	.432	.046	.428	<.001	

Note. ** $p < .01$ * $p < 0.05$. QIDS= Quick Inventory of Depressive Symptomology, PQ-LES-Q= Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire

Following, a linear regression with interaction terms was conducted to determine whether race and gender or ethnicity and gender predict quality of life following treatment. The regression included race, ethnicity, gender, and pre-quality of life as predictor variables. Additionally, for this model the researcher included two combined variables, one dummy coded as gender and race and another coded as gender and ethnicity. The interaction terms (i.e., gender and race, gender and ethnicity) were created as a product of the dummy coded variables. The results of the regression model testing interaction effects were not statistically significant, indicating a relationship between the interaction terms of race with gender or ethnicity with gender and post-PQ-LES-Q scores was not found. However, with this model the predictor of

race, while not statistically significant was trending, $R^2 = .187$, $F(6, 402) = 15.45$, $p < .054$) (see Table 7). These results also suggest that among the current sample there were no significant differences in quality of life scores following treatment for the ethnic (Hispanic, Non-Hispanic), racial (White, Black), or gender (Male, Female) groups included in this study.

Table 5

Predicting Quality of Life Using Multiple Predictors and Interaction Terms

Predictor Variable	B	SE	Standardized Beta	<i>p</i>	R^2
Race	11.86	6.14	.117	.054	.187
Ethnicity	.416	3.54	.007	.906	
Gender	8.58	10.88	.246	.431	
Pre-PQ-LES-Q	.431	.046	.427	<.001	
Race x Gender	-11.28	9.17	-.320	.219	
Ethnicity x Gender	2.76	6.05	.077	.648	

Note. ** $p < .01$ * $p < 0.05$. QIDS= Quick Inventory of Depressive Symptomology, PQ-LES-Q= Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire

Research question two. A linear regression was conducted to determine whether ethnicity/race predicted depressive symptom severity. The pre-QIDS score also was entered as a predictor to control for symptom severity before treatment. Additionally, gender was included as a predictor variable to determine the relationship between gender and depressive symptom severity. The results of the regression model were not statistically significant for any of the demographic predictor variables (see Table 6). Predictor variables were all entered at the same time and in the same step in the regression analyses.

Table 6

Unstandardized and Standardized Regression Coefficients for Predicting Depression Symptom Severity from Race, Ethnicity, and Gender

Predictor Variable	B	SE	Standardized Beta	<i>p</i>	R ²
Race	-.558	1.32	-.019	.672	.435
Ethnicity	-.05	.829	-.003	.948	
Gender	-.406	.460	-.040	.379	
Pre-QIDS	.361	.039	.426	<.001	

Note. ** *p* < .01 **p* < 0.05. QIDS= Quick Inventory of Depressive Symptomology

Following, a linear regression with interaction terms was conducted to determine whether race and gender or ethnicity and gender predict symptom severity post-treatment. The regression included several predictor variables including two combined variables, one dummy coded as gender and race and another coded as gender and ethnicity. The interaction terms (i.e., gender and race, gender and ethnicity) were created as a product of the gender and race and gender and ethnicity dummy coded variables. The results of the regression model testing interaction effects were statistically significant. Specifically, the interaction term of race with gender predicted post-QIDS scores ($R^2 = .45$, $F(6, 402) = 17.09$, $p < .001$) (see Table 7). Therefore, means of Black females were significantly higher on the QIDS following treatment (Table 8). Additionally, the ethnicity and gender interaction term were not significant, suggesting that among the current sample, Hispanic and Non-Hispanic gender subgroups did not have significant differences in depression scores following treatment.

Table 7*Predicting Depression Symptom Severity Using Multiple Predictors and Interaction Terms*

Predictor Variable	B	SE	Standardized Beta	<i>p</i>	R ²
Race	-3.11	1.76	-.106	.078	.20
Ethnicity	.847	1.01	.046	.404	
Gender	-3.39	3.12	-.336	.277	
Pre-QIDS	.366	.039	.432	<.001	
Ethnicity x Gender	-2.63	1.74	-.255	.131	
Race x Gender	5.61	2.62	.549	.033	

Note. ** $p < .01$ * $p < 0.05$. QIDS= Quick Inventory of Depressive Symptomology

Table 8*Means of the post-QIDS scores by Race and Gender groups*

Race	Female		Male	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Black	11.00	5.25	4.00	4.24
White	8.00	4.79	7.01	4.56

Summary

This study examined the relationship between race, ethnicity, and treatment outcomes among adolescents in an intensive treatment setting. The current study had two aims: 1) determine the associations among race/ethnicity and levels of depressive symptom severity following treatment, and 2) determine the relationship between race/ethnicity and reported quality of life following treatment. Additionally, the study included interaction effects to

determine if demographic subgroups (e.g., Hispanic males) predicted significantly different levels of depressive symptom severity or quality of life following treatment.

Overall, adolescents in the sample had significant improvements in quality of life and depressive symptoms when comparing PQ-LES-Q and QIDS scores before and after treatment. The current study did not find statistically significant associations between ethnicity, race, or gender and quality of life following treatment. This finding suggests that Hispanic and non-Hispanic, males and females, and Black and White participants reported quality of life following treatment similarly to one another. For depressive symptom severity following treatment a significant interaction effect was found between race with gender and post-QIDS scores, which indicated Black females had significantly higher scores on the QIDS following Behavior Activation. However, the sample had a small number of Black females ($n = 6$); therefore, these results should be considered with caution.

Chapter 5

Discussion

Introduction

Behavior Activation has led to significant improvements in depressive symptoms in adolescents (Martin & Oliver, 2018). However, few studies have examined its effectiveness among demographic subgroups of adolescents. Lack of applicability of an intervention to multiple cultural contexts can lead to decreased patient satisfaction, premature dropout, and less effective outcomes (Hall et. al, 2006; Olfson et al., 2009).

The purpose of this study was to examine the relationship between ethnic/racial identity and treatment outcomes following Behavior Activation (BA) treatment. Data were analyzed from adolescents who completed intake and exit assessments on their quality of life and depressive symptoms. The study also addressed the role of gender in these potential associations. This study hopes to expand the knowledge and implications of BA as an intervention for culturally diverse adolescents. This chapter discusses the findings of the current study and its implications. Additionally, limitations, implications for future research, and recommendations for future research will be discussed.

Demographic Characteristics

Ethnicity and race. The sample was composed of majority Non-Hispanic, White participants (91.8%), which is consistent with other studies investigating BA treatment with adolescents, specifically those implemented in mental health clinics. Prior studies have reported significant differences in the use of mental health services with Non-Hispanic, White youth (ages

6-18) utilizing services with much greater frequency than Hispanic/Latinx and African American/Black youth (Garland et al., 2005). This may be due to the use of informal services being greater among Hispanic/Latinx youth and African American/Black youth or larger systemic issues like lack of access and availability of services (Garland et al., 2005).

Gender. The majority of the sample identified themselves as female. Similarly, prior studies examining differences in mental health utilization between genders have found that females are more likely to seek mental health services (Smith et al., 2013). Prior studies have shown lower levels of help-seeking among men persist across ethnic/racial groups, across income levels, and the type of mental health concern (Addis & Mahalik, 2003; Woodward, Taylor, & Chatters, 2011). This may be due to the socialization of men to be more self-reliant, which leads them to not ask for help informally or professionally (Addis & Mahalik, 2003).

For transgender/non-binary youth no studies have examined differences in utilization as compared to cis-gender youth and studies examining BA treatment among adolescents have only reported traditional male and female variables for gender. The current study was consistent with prior literature examining BA treatment among males and females due to the small number of transgender/non-binary patients in the available data set.

Interpretation of Results

Preliminary analyses. For the overall sample, adolescents in the sample did have significant improvements in both quality of life and symptom severity when comparing levels before and after BA treatment. BA as a treatment focuses on pleasant, valued, and routine activities in a number of domains (e.g., home, school, work, relationships) which may also explain the overall improvements in quality of life found in our study. A prior study examining

CBT after 12 weeks, showed significant increases in quality of life and found quality of life was mediated by improved depressive symptoms (Vitiello et al., 2006).

In this sample, there also was a significant decrease in depressive symptoms. These findings are similar to prior studies examining BA when implemented with adolescents (Martin & Oliver, 2019). BA as a treatment aims to increase the amount of environmental positive reinforcement, increase engagement with one's environment, and reduce behaviors like avoidance and rumination. As a treatment, BA has been shown to be an effective, acceptable, and feasible treatment for reducing depressive symptoms in youth (Martin & Oliver, 2019).

The following sections address the specific research questions, regarding if treatment outcomes (i.e., quality of life, depressive symptom severity) differ between ethnic, racial, and/or gender groups following BA.

Research question one. Do ethnicity/race or gender predict change in quality of life among adolescents seeking treatment for depression?

Because a statistically significant relationship was not found between ethnic/racial identity and quality of life, it was expected that there would not be any group differences in the sample regarding ethnicity/racial groups. Prior studies have not examined quality of life following full BA treatment in adolescents. One study examined a one-session approach focusing on increasing religious behaviors and resulted in increased quality of life post-treatment (Armento, McNulty, & Hopko, 2012). However, depression as a disorder can interfere with academic functioning, social relationships, and engagement with family at home (Keenan-Miller, Hammen, & Brennan, 2007), all of which are assessed in the Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire (PQ-LES-Q; Endicott et al., 2006).

Research question two. Do ethnicity/race or gender predict change in symptom severity among adolescents seeking treatment for depression?

Findings demonstrated that ethnic/racial identity was not a significant predictor of depressive symptomology following treatment among youth in this sample. There was an interaction effect found between race with gender on post-QIDS scores, which indicated Black females had significantly higher scores on the QIDS following BA. This finding was unexpected. Prior studies comparing changes in depressive symptomology between ethnic/racial groups is scant. However, a case study on the efficacy of BA with 3 low-income African American adolescents (2 boys [ages 14-15] and 1 girl [age 17]), resulted in 2 out of the 3 participants no longer meeting criteria for Major Depressive Disorder (MDD) after 17 sessions (Jacob et al., 2013). More specifically, the African American female in the case study no longer met criteria and reported increased problem-solving and greater participation in social activities following BA treatment (Jacob et al., 2013). In sum, few studies have included racially/ethnically diverse individuals in their samples and examined group differences.

Implications

In BA therapy, the client leads in identifying environmental variables (i.e., people and activities) that contribute to or reduce their depressed mood, as well as rate the level of importance of these variables in their lives. Using this approach allows clinicians to consider the individual values of the client, prior to planning SMART (Specific, Measurable, Appealing, Realistic, Time-bound) goals for planning future activities to increase the client's mood. This understanding of people and activities that lead to the adolescent's depressed mood also incorporates the social and interpersonal contexts of an adolescent's depression. Therefore,

taking this collaborative approach as used in BA for the treatment of depression in adolescents may lead to improved outcomes in quality of life and depressive symptom severity.

For minoritized youth, this collaborative approach incorporating environmental contexts and individual values of each patient may increase cultural adaptability. Prior literature suggests that psychological interventions that are culturally sensitive result in larger effects sizes following treatment (Hall et al., 2016). BA allows the client to select treatment targets and plan activities that are pleasant, valued, or part of their routine.

The preliminary findings of the study provide support for the use of BA for the adolescent age group. Prior studies have indicated that BA provides a more developmentally appropriate treatment in comparison to Cognitive Behavioral Therapy (Martin & Oliver, 2019). Additionally, BA has been found to be easier to train and therefore, more cost effective for intensive treatment settings and with non-traditional mental health providers (Martin & Oliver, 2019).

Limitations

There were several limitations to the current study. First, there was a small sample size for the demographic subgroups, specifically African American/Black ($n = 11$). However, the collected demographic data were similar to other studies with clinic-based samples. The current study found a significant interaction between race and gender; however, the small sample size limits the generalizability of these results to other female, African American adolescents. The limitations in sample size as it relates to the demographic subgroups, occurred with transgender/non-binary patients as well who were excluded from analyses due to the limited sample size.

The current study also included multiple levels of treatment, which may have impacted post-treatment outcomes. Most patients took part in residential treatment, while other patients were in partial hospitalization, or intensive outpatient programs. The levels of intensity were not included in our analyses but could have contributed to the reductions in levels of depressive symptoms due to the amount of hours/day patients spent in treatment being greater for those in residential programs. Further, patients who completed multiple levels of treatment (i.e., partial hospitalization and intensive outpatient) were excluded from the analyses, along with patients who entered and exited treatment multiple times. Participants were excluded to ensure their observations were not counted multiple times in the data set; however, this may impact the generalizability of the data to patients who complete multiple levels of treatment or complete treatment more than one time.

Additionally, due to the archival data set used additional measures could not be included in the current analyses. Patient information regarding medication was not included in the dataset, which also could have affected the efficacy of treatment at the behavioral health clinic. For ethnic/racial minoritized youth other factors may contribute to their compatibility with treatment, like racial/ethnic match between clinician and patient, which was not examined in the current study.

Future Directions

Future studies should include more gender and racially/ethnically diverse samples to determine the effectiveness of BA among minoritized populations, while also evaluating treatment acceptability or satisfaction for these populations. In the current study, we employed solely quantitative analyses; future studies would benefit from including qualitative responses to gain patient perspectives on improvements and their experiences receiving higher levels of

mental health care. This could involve holding focus groups to gain patient perspectives on their treatment experience. Utilization of mental health care among ethnic/racially minoritized youth is lower than among Non-Hispanic, White youth; therefore, hearing their perspectives could be helpful in identifying acceptability and the most helpful components of treatment.

In the current study, we examined post-treatment outcomes, while controlling for baseline scores. It may also be important to follow-up with patients on the sustainability of gains made during BA treatment and to identify any significant barriers in maintaining these gains over time. Additionally, in the current study, the most common secondary diagnosis was generalized anxiety. Future studies should examine the efficacy of BA on both depressive and anxiety symptoms given that the two commonly co-occur in adolescents. This can include administering to participants outcome measures specific to anxiety symptoms, in addition to a measure of depressive symptomology as used in this study.

Summary

The current study sought to examine BA as a treatment for diverse adolescents in an intensive treatment setting. Findings from this study demonstrated that Behavior Activation significantly reduced overall levels of depression and improved quality of life for adolescents represented in the data set. Prior literature has examined BA with youth in clinic settings; this study uniquely examined BA with youth in intensive outpatient, partial hospitalization, and residential levels of care. Additionally, most youth were diagnosed with recurrent and severe to moderate forms of Major Depressive Disorder (MDD). Prior literature has suggested that BA may fare better than cognitive-behavioral approaches for adults with more severe forms of depression (Jacobson, Martell, & Dimidjian, 2001). Although, this study did not compare BA to

cognitive-behavioral therapy (CBT) these findings provide support for BA for youth with more severe forms depression.

In the study, most youth had comorbid diagnoses of Generalized Anxiety Disorder (GAD) or Social Anxiety (SA). Anxiety disorders and depressive disorders commonly co-occur, and while more research is needed on if BA can reduce both depression and anxiety symptoms, this study provides support for BA reducing depressive symptoms in youth with a comorbid diagnosis. This finding also increased the generalizability of the current study to youth with more than one diagnosis, which is often the case in clinic settings.

Next, for ethnically/racially minoritized adolescents, the findings indicated group differences in depressive symptomology in Black/African American females and no group differences in quality of life following treatment. These findings suggest that among the sample there were no significant differences in levels of quality of life following BA treatment, but there may be higher levels of depressive symptoms post-treatment for African American females. However, given the small sample size of African Americans, these findings should be generalized with caution. In sum, for clinicians in intensive treatment settings, these findings show that BA can be a developmentally appropriate treatment to reduce symptoms for adolescents with moderate to severe depressive symptoms and comorbid diagnoses.

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