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The Role of Therapeutic Engagement, Oral Language Proficiency, and Core Learning Indicators on the Effects of Therapy for Youth with Depression

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The Role of Therapeutic Engagement, Oral Language Proficiency, and Core
Learning Indicators on the Effects of Therapy for Youth with Depression

A Dissertation
Presented in
Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy

By
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August, 2017

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BIOGRAPHY

The author was born in Thousand Oaks, California on July 2, 1985. She graduated from University of California, Berkeley in 2007 with a Bachelor of Arts degree in Psychology. In 2013, she received a Master of Arts degree from DePaul University in Clinical-Child Psychology. She is completing her American Psychological Association accredited pre-doctoral clinical psychology internship at the University of Miami, Mailman Center for Child Development.

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Abstract

Youth with depression, particularly ethnic minority youth, have low rates of engagement in mental health services, indicating a large need to better understand the role of engagement in effective treatments for depression (Merikangas et al., 2011). Cognitive behavioral therapy (CBT) is one of the leading psychotherapeutic treatments available for youth with depression (Weisz, McCarty, & Valeri, 2006), but several questions still remain regarding why and in what circumstances this therapy is most appropriate. CBT posits that part of the positive treatment effects is accounted by learning certain cognitive and behavioral skills during and outside of session (i.e., through active homework assignments). This study examined: a) the association between engagement (i.e., homework completion and consumer satisfaction) in a school-based group CBT program and changes in depressive symptoms; b) the mediational role of core learning indicators (social functioning and negative cognitions) in the relationship between engagement and change in depressive symptoms; and c) the moderational role of youth English oral language proficiency. The sample of 99 predominantly low-income ethnic minority youth (66.0% female; 85.9% Latino), ages 10 to 14 ($M = 12.03$, $SD = 1.04$), participated in the Act & Adapt Program (Polo, Connor, Jensen-Doss, & Weisz, 2009), a manualized group CBT program delivered across nine public schools.

Multiple regression analyses revealed that neither engagement variable was directly associated with changes in depressive symptoms. Furthermore, neither change in social functioning nor negative cognitions mediated the engagement-treatment outcome relationship. On the other hand, English oral language

proficiency moderated the relationship between homework completion and depressive symptoms ($\beta = -.0002$, $t = -2.45$, $\Delta R^2 = .05$, $p < .05$), as well as between consumer satisfaction and depressive symptoms ($\beta = .01$, $t = 2.21$; $\Delta R^2 = .04$, $p < .05$). Specifically, those with high levels of English oral language proficiency had an association between increased homework completion and depressive symptoms, while those with low levels of English oral language proficiency did not have a significant association between homework completion and depressive symptoms. Additionally, those with low English oral language proficiency had an association between increased consumer satisfaction and decreased depressive symptoms, while those with high English oral language proficiency did not have a significant association between homework completion and depressive symptoms. There was some evidence of a moderated mediational effect, with oral language proficiency moderating the indirect effect homework completion on treatment outcomes via negative cognitions. However, probing of this moderation revealed no significant indirect effects at the 10th, 25th, 50th, 75th, or 90th percentile. Implications are discussed for researchers and clinicians to take into consideration youths' oral language proficiency and how language proficiency may interact with engagement in impacting youth treatment outcomes for depression.

Introduction

Depression is one of the leading causes of disability for young people worldwide (Gore et al., 2014). By the time adolescents are 18 years old, it is estimated that 12% of youth will meet criteria for a depressive disorder (Merikangas et al., 2010). Most youth with depression experience significant impairment in at least one domain of their life, including areas of schoolwork, family/peer relationships, and household chores (Avenevoli, Swendsen, He, Burstein, & Merikangas, 2015). Ethnic differences have been noted in the prevalence of depressive symptoms and depressive disorders. For example, Latino youth tend to have higher rates of depression than their non-Latino White counterparts (Anderson & Mayes, 2010; Tortolero & Roberts, 2001; Twenge & Nolen-Hoeksema, 2002; Merikangas et al., 2010).

Despite the impairment caused by depression, youth with depression are less likely to utilize mental health services, in comparison to those with other psychological disorders (Merikangas et al., 2011). A national study on service utilization found only 38% of youth with a depressive disorder received treatment for their depressive symptoms, leaving 62% of youth with depressive disorders with an ‘unmet need.’ (Merikangas et al., 2011). These rates of unmet need were even higher for ethnic minority youth, with Latino youth 53% less likely and African American youth 87% less likely to receive services for their depressive disorders, relative to European American youth (Merikangas et al., 2011). Moreover, dropout of mental health services has become a concern for youth even if they have enrolled in mental health services. Studies indicate anywhere from 40-60% of youth terminate services before finishing treatment and that ethnic

minority youth are more likely than European American youth to dropout of treatment (Kendall & Sugarman, 1997; McCabe, 2002; Miller, Southam-Gerow, & Allin, 2008). Youth with depressive disorders also have higher attrition rates than those with other psychological disorders (Fernandez, Salem, Swift, & Ramtahal, 2015). These high rates of depression (and accompanying impairment), coupled with low rates of service use, emphasize the need to engage youth in effective and engaging treatments for depression.

Psychotherapy has been found to be efficacious in treating youth depression but with only modest effect sizes (Weersing, Jeffreys, Do, Schwartz & Bolano 2017; Weisz et al., 2006). One meta-analysis cites the average effect size for psychotherapies for youth depression to be .34 (in the small to medium range), which is smaller than the effect size of treatments for other psychological disorders in youth (average ES of 0.69; Weisz et al., 2006). Despite evidence of effective psychotherapies for youth with depression, a great deal of work remains to improve current treatments.

Cognitive Behavioral Therapy for Depression

Cognitive Behavioral Therapy (CBT) is one of the leading evidence-based psychotherapies for depression in youth (McCarty, Weisz, & Hamilton, 2007; Weisz et al., 2006), including for ethnic minority youth (Huey & Polo, 2008). Cognitive behavioral theory posits that depression is developed and maintained through a client's beliefs and behaviors (Beck, Rush, Shaw, & Emery, 1979; Sue & Sue, 2008). Beck theorizes that people with depression hold onto overly negative/dysfunctional beliefs about oneself and the world, oftentimes called

cognitive distortions, which contribute to the onset and maintenance of depression (Beck et al., 1979; Sue & Sue, 2008). Additionally, individuals prone to depression engage in unrewarding activities, instead of active and positively reinforcing, activities (Sue & Sue, 2008). Therefore, CBT typically involves several components that aim to contribute to youths' repertoire of coping skills, including behavioral activation skills to help increase engagement in rewarding activities, problem solving skills, social skills to help form better relationships with others, and cognitive restructuring skills to challenge or reframe their negative cognitive distortions (Beck, 2011; McCarty & Weisz, 2007).

A significant amount of research indicates that cognitive behavioral therapy is efficacious for various child and adolescent disorders, including depression (Chu & Harrison, 2007; Garber, Brunwasser, Zerr, Schwartz, Sova, & Weersing, 2016; Shirk & Karver, 2006; Watanabe, Hunot, Omori, Churchill, & Furukawa, 2007; Weisz et al., 2006). Several meta-analyses have found CBT to be efficacious in treating depression in youth, with evidence that both individual and group CBT protocols have similar treatment effects on youth's depressive symptoms (Arnberg & Öst, 2014; David-Ferdon & Kaslow, 2008; Huntley, Araya, & Salisbury, 2012; Rosselló, Bernal, & Rivera-Medina, 2008; Weersing & Brent, 2006; Weisz et al., 2006). As schools are one of the most common avenues for youth to access mental health services (Costello et al., 2014), it is encouraging that evidence supports CBT in school settings as efficacious in reducing symptoms of depression (Calear & Christensen, 2010; Das et al., 2016).

Evidence supports CBT as superior to waitlist or active control conditions,

but there is some controversy as to whether CBT outperforms other established treatments for youth depression (Weersing & Brent, 2006; Weisz et al., 2006). For instance, the Treatment of Adolescent Depression Study (TADS), one of the largest RCTs conducted with youth depression, compared four treatment options: psychiatric medication (specifically fluoxetine), CBT, combined fluoxetine with CBT, and pill placebo. They found combined fluoxetine with CBT to be most effective, followed by fluoxetine alone and no significant differences between CBT alone or pill placebo (Reinecke, Curry, & March, 2009; TADS, 2004). Some have critiqued potential methodological issues within both the pill placebo and CBT conditions (McCarty & Weisz, 2007). Regardless the study indicates inconsistent findings within the CBT literature.

Such inconsistent findings in regards to CBT's efficacy support the need to improve upon current CBT treatments to make sure they incorporate all the necessary components and help maximize the treatment's effectiveness. Variability in methodological procedures and variance between CBT programs' components (e.g., inclusion or exclusion of relaxation module or social skills module) may contribute to these discrepant results (McCarty & Weisz, 2007; Weersing & Brent, 2006).

There is even less evidence on treatment outcomes for ethnic minority youth. The majority of research conducted on the treatment for youth with depression has focused on European American youth (Weisz, Doss & Hawley, 2005). A meta-analysis by Huey and Polo (2008) found that a limited number of studies explored efficacious treatments for depression with ethnic minority youth.

Their review did not find any well-established treatments for ethnic minority youth with depression but indicated both CBT and Interpersonal Psychotherapy (IPT) as probably efficacious treatments for Latino youth, with more research required in order to have more confidence in the efficaciousness of these treatments.

Overall, a great deal of work still needs to be conducted to establish culturally appropriate psychotherapeutic treatments for youth with depression. Within CBT, it is important to know what aspects of psychotherapy are most important to get youth engaged and produce the best possible treatment effects. This may include understanding what clients may need to do or experience to maximize effectiveness or what components of CBT need to be covered in therapy to produce positive treatment outcomes (McCarty & Weisz, 2007). Having more effective treatments with all necessary and useful components would help clinicians to provide the best possible care to all those who need it.

Therapeutic Engagement in Mental Health Services

A number of research studies indicate that therapeutic engagement in psychotherapy is positively associated with improved treatment outcomes (LeBeau, Davies, Culver, & Craske, 2013). However, there is considerable variability in how ‘engagement’ is defined and measured. Engagement has been defined as “all the efforts that clients make during the course of treatment (both within and between sessions) toward the achievement of changes” (Holdsworth et al., 2014 p. 430) or “actions, strategies, and behaviors to promote treatment alliance, involvement, and completion” (Shirk & Karver, 2006 p. 479). Researchers have developed intervention strategies to increase engagement with

services in hopes to increase access to services and improve treatment outcomes (Kenwright & Marks, 2003; Kim, Munson, & McKay, 2012; Lindsey et al., 2014). It is important to understand how different types and levels of engagement may impact youths' depressive symptoms; this is particularly relevant for ethnic minority youth with depression who have lower rates of utilizing mental health services and higher drop-out rates of services than European American youth (Merikangas et al., 2011; Warnick, Gonzalez, Weersing, Scahill, & Woolston, 2012).

A review of engagement literature with adults identified several different ways engagement has been measured, including: attendance, participation, homework compliance, therapeutic relationship, and consumer satisfaction (Holdsworth et al., 2014). The most common way engagement has been defined is through attendance, with significant variability in how attendance is measured. Measurement of attendance has ranged from categorical units of (yes/no) in regards to whether clients attended at least one session or attended more than 50% of session to continuous variables through calculating the number/percentage of sessions attended (Holdsworth et al., 2014; Lindsey et al., 2014). Research on engagement indicates an established positive association between attendance and treatment outcomes, resulting in many researchers focusing on interventions to improve attendance outcomes (Blackford & Love, 2011; Glenn et al., 2013; Lindsey et al., 2014). However, attendance is often critiqued as a measure of engagement since it is considered the bare minimum effort necessary in order to receive psychotherapy (Holdsworth et al., 2014). In addition, it is important to

recognize that in many settings and for many families, there are physical barriers to attendance (e.g., transportation issues, childcare issues, etc.) that may or may not be indicative of how truly engaged clients are with treatment (Barrio et al., 2008). Conversely, in other settings attendance may be mandatory for youth and may not be the most valid measure of engagement (Cunningham, Duffee, Huang, Steinke, & Naccarato, 2009). Mental health services via a school setting is unique with regards to attendance, as many schools already have a strict attendance policy (Becker, Buckingham, & Brandt, 2015), which may inflate attendance rates of school-based mental health services.

Therapeutic alliance and consumer (or treatment) satisfaction are two additional ways engagement has been operationally defined. A meta-analysis of the therapeutic relationship within child and adolescent therapy found a modest association between the therapeutic relationship and treatment outcomes (Shirk & Karver, 2003). Several studies support the importance of the therapeutic relationship in psychotherapy (Thompson, Bender, Lantry, & Flynn, 2007), with significant evidence relating therapeutic alliance to positive treatment outcomes (Karver et al., 2008; Karver, Handelsman, Fields, & Bickman, 2006). However, some have argued that the therapeutic relationship is not a measure of engagement; instead, they see it as the factor that leads to increased engagement (Holdsworth et al., 2014). Related to therapeutic alliance is consumer satisfaction, which represents the degree of satisfaction with sessions, which several studies have utilized as a measurement of engagement (Holdsworth et al., 2014; Joe, Broome, Rowan-Szal, & Simpson, 2002; Simpson et al., 2009; Tetley, Jinks, Huband, &

Howells, 2011). There are mixed results about the impact of consumer satisfaction on therapeutic outcomes with adults, with some studies indicating a positive association while others finding little or variable association (Lebow, 1982; Pekarik & Guidry, 1999). Limited research has been conducted specifically examining youth consumer satisfaction. However, one study found youth satisfaction in psychotherapy to be associated with decreased problems and increased functioning (Turchik, Karpenko, Ogles, Demireva, & Probst, 2010). Garland and colleagues (2007) found parent and youth satisfaction to be associated with parent-reported but not youth-reported treatment outcomes. One concern with consumer satisfaction is that it can be viewed as a construct that leads to increased engagement or a product of being engaged (Holdsworth et al., 2014).

Another way engagement has been operationally defined is through homework completion. Unlike attendance, homework completion helps capture youths' efforts made outside of sessions, typically practicing skills or reviewing concepts covered in therapy. Again, there is great variability in how homework compliance has been measured and has included: homework completion (as either yes/no/partial - and varies in terms of self- or therapist- report), time spent on homework (self-reported), and quality of homework as rated by therapists (Holdsworth et al., 2014; Shirk, Crisostomo, Jungbluth, & Gudmundsen, 2013).

Several adult and child studies have found a relationship between homework and therapeutic gains (Gaynor, Lawrence, Nelson-Gray, 2006; Neimeyer, Kazantzis, Kassler, Baker, & Fletcher, 2008; Neimeyer & Feixas, 1990; Simons et al., 2012), including several meta-analyses which have found

benefits of assigning homework and assessing completion of homework on symptoms of anxiety and depression (Kazantzis, Deane, & Ronan, 2000; Kazantzis, Whittington, & Dattilio, 2010; LeBeau, Davies, Culver, & Craske, 2013). One meta-analysis found a significant effect size for homework completion ($ES = .22$) contributing to change in symptoms for depression, with preliminary findings suggesting particular benefits of homework related to social skills (Kazantzis et al., 2000). Within the TADS study, youth who were enrolled in the CBT-only condition, displayed a positive association between homework completion and a decrease in depressive symptoms (Simons et al., 2012). However, researchers were not able to assess *why* homework completion was related to a decrease in depressive symptoms. In contrast to the previous studies, a study that coded audio discussions of homework review failed to find a relationship between homework completion and treatment outcomes (Shirk et al., 2013). Thus, there are still gaps in understanding the extent to which homework contributes to treatment outcomes and what factors may impact the relationship between homework and treatment.

Overall, the lack of consensus in the operational definition of engagement remains a problem. Understanding which types of engagement are related to treatment - and to what extent engagement is related to treatment outcomes - could help in the development of more effective treatments. Even with evidence of a positive association between increased engagement and better treatment outcomes, there remains a gap in the literature regarding what processes contribute to this relationship. Potential mediators need to be explored in order to

understand how increased engagement leads to better treatment outcomes. Awareness regarding what explains this process can help lead to improved psychotherapeutic treatments (McCarty & Weisz, 2007). The purpose of this study is to bridge the gap in understanding the degree to which youth therapeutic engagement may impact treatment outcomes of youths' depressive symptoms, and what factors may help account for, and impact, this relationship.

Mediators of Change

Research findings indicate a positive association between engagement and treatment outcomes for youth depression, yet few have explored potential mediators that may help explain this relationship. Mediation involves several components including changes in the independent variable (IV) predicting changes in the mediator, which contributes to changes in the dependent variable (DV). Some have broadly examined mediators of CBT (vs. other treatments) yet few of these have examined mediators of CBT in the context of engagement (Kazdin, 2007; Lorenzo-Luaces, German, & DeRubeis, 2014; Shirk & Karver, 2006). Proposed mediators of psychotherapy include acquisition and use of cognitive (e.g., changing negative cognitions) and behavioral strategies (e.g., behavioral activation; Kazdin, 2007; Weersing & Weisz, 2002). Furthermore, acquisition and use of core CBT skills have also been hypothesized to be mediators between engagement and therapeutic outcomes (Shirk et al., 2013; Simons et al., 2012).

Several studies have examined the relationship between learning CBT skills and change in depressive symptoms, with most of the studies being with adult clients. For example, Hundt and colleagues (2013) reviewed studies

conducted with adults, which examined the relationship between CBT skills and depression; they found that frequency and quality of skill use were related to a decrease in depressive symptoms. However, out of 26 studies, only two studies assessed CBT skills as a mediator of treatment. Both were conducted with adults and found some evidence that use of CBT skills may be a mediator of CBT (vs. a control condition; Gallagher-Thompson, Gray, Dupart, Jimenez, & Thompson, 2008; Kuyken et al., 2010). These studies examined quantitatively *how often* clients utilized skills rather than the degree to which clients learned the skills.

Additionally, as there are many skills taught during CBT, there is a lack of clarity about which skills are most important to learn and practice. Two promising mediators that are often taught during CBT are cognitive restructuring (to challenge and change unrealistic negative cognitions) and social skills (including social problem-solving skills to improve social functioning). Both have shown a link to depression and improving these skill sets show some evidence towards improved outcomes (Kaufman, Rohde, Seeley, Clarke, & Stice, 2005; Neimeyer & Feixas, 1990; Stice, Rohde, Seeley, & Gau, 2010). Evidence regarding whether the development of specific skills leads to a reduction in depressive symptoms could help target and streamline treatments for depression.

For this study, in order to assess whether youth learned certain skills, two different indicators of whether youth learned certain core skills will be examined, and will be referred to as core learning indicators (CLIs). In order to better understand whether youth acquired social skills, the CLI of social functioning will

be examined. In order to assess whether youth acquired the skill of cognitive restructuring the CLI of negative cognitions will be examined.

Social Functioning as a Mediator

There is a strong association between social support and social connections with positive mental health outcomes (Dumont & Provost, 1999; Patten, Williams, Lavorato, & Bulloch, 2010). This supports the notion that improved social functioning may mediate the relationship between engagement in CBT and positive mental health outcomes (Dumont & Provost, 1999; Patten et al., 2010). Those with depression often experience poor social supports/relationships which can be the result of poor social skills such as an unengaging social style, trouble initiating and maintaining positive social relationships, underutilization of available social supports, and poor social problem solving skills (Becker-Weidman, Jacobs, Reinecke, Silva, & March, 2010). In turn, these poor connections with others and poor social skills contribute to an increase in depressive symptoms (Agerup, Lydersen, Wallander, & Sund, 2015; Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990; DiFilippo & Overholser, 2000; Millings, Buck, Montgomery, Spears, & Stallard, 2012).

Given this association between poor social relationships and depression, several CBT protocols incorporate various skills that target improving youths' social skills and social supports (McCarty & Weisz, 2007). For example, some youth are taught certain behavioral activation techniques that encourage them to engage in more social activities or problem solving skills to help solve social problems (McCarty & Weisz, 2007). In two related evidence-based CBT manuals

for depression, Act & Adapt (Polo et al., 2009) and PASCET (Weisz et al., 1999), youth are taught positive self-presentation skills (e.g., eye contact, appropriate tone and volume of voice, body language, and verbalizing positive statements) aimed at helping youth have more positive social interactions so they can develop and maintain better relationships with those around them. Additionally, youth are taught to utilize (and therefore strengthen) social supports when feeling down in order to help them decrease their depressive symptoms.

There is evidence in the adult psychotherapy literature that perceived social support mediates a change in depressive symptoms, and that social skills training helps decrease depressive symptoms (Dour et al., 2014; Hayman & Cope, 1980; Thase, 2012). A meta-analysis found a significant effect size for homework completion ($ES = .22$) contributing to change in depressive symptoms, with one finding suggesting social skills homework as a potentially beneficial type of homework (Kazantzis, Deane, & Ronan, 2000). One study that looked at mechanisms of CBT and IPT for adults with depression found that interpersonal functioning mediated treatment outcomes for both types of therapy (Lemmens et al., 2017).

Less explored is the impact of CBT on social functioning and depression with youth. There is evidence that CBT positively impacts youths' relationships with others, including their family members (Kolko et al., 2000). One study utilizing TADS data, found that social problem solving skills were related to improved treatment outcomes for youth with depression (Becker-Weidman et al., 2010). Additionally, the TORDIA (Treatment of SSRI-Resistant Depression in

Adolescents) study, found that number of sessions attended (9 or more sessions attended) and learning social skills were related to improved treatment outcomes for youth with severe depression, but did not specifically evaluate social skills as a mediator (Kennard et al., 2009).

Another reason social functioning may function as a mediator between therapeutic engagement and change in depressive symptoms is the critical role social functioning plays in other evidence-based psychotherapy treatments for youth depression, such as interpersonal therapy (IPT; David-Ferdon & Kaslow, 2008; Mufson, et al., 2004). IPT focuses on decreasing depressive symptoms via interpersonal change mechanisms that target helping clients to process emotions, enhance social supports, reduce interpersonal stress, and improve social skills (Lipsitz & Markowitz, 2013). Effective youth psychotherapies have been found to improve social functioning in adolescents (Young, Kranzler, Gallop, & Mufson, 2012). Additionally, change in interpersonal functioning has been found to mediate treatment effects for adults with depression in both CBT and IPT conditions (in comparison to control groups; Lemmens et al., 2017), indicating social functioning may also mediate treatment effects for youth.

There is still a dearth of information regarding the impact engagement may have on social skills and whether this may mediate changes in depressive symptoms in youth. Additionally, this relationship has not been explored in the context of group therapy, where clients may have more opportunities to strengthen this skillset and improve their social functioning. This is the first study that this author is aware of that explores whether social functioning mediates the

relationship between youth therapeutic engagement and a decrease in depressive symptoms.

Negative Cognitions as a Mediator

Researchers have established a clear association between negative cognitions and depression. Cole and Turner (1993) found evidence suggesting negative cognitive distortions may mediate the relationship between negative life events and depressive symptoms. A meta-analysis indicated mixed findings in regards to negative cognitions as a mediator of treatment effects for depressive symptoms (Lemmens, Muller, Arntz, & Huibers, 2016), with some studies indicating mediation while others not indicating mediation. This review mostly consisted of studies with adults but also included studies with adolescents (over age 13). When focusing specifically on youth, CBT has been found to be effective at reducing depressive symptoms and negative cognitive errors in youth (Kolko et al., 2000). Even further, changes in automatic thoughts have been found to mediate the treatment effects for group CBT, when compared to a control group (Kaufman et al., 2005). Less established is the relationship between youth *therapeutic engagement*, change in negative distortions, and treatment outcomes among depressed youth.

One study attempted to assess change in cognitive distortions as a mediator between engagement and depressive symptom in youth (Shirk et al., 2013). The authors measured engagement by 1) coding a ten-minute segment of an audio session in which the client and therapist worked on cognitive restructuring; and 2) having external raters code clients' efforts put into homework on a scale from 0

(no effort) to 6 (exceptional effort), using audio recordings from select sessions. This study found that a change in negative cognitive distortions predicted a later change in depressive symptoms. They did not find an association between engagement and change in depressive symptoms or engagement and change in cognitive distortions. Additionally, this study had a fairly small sample size of 44 adolescents, and thus may not have been able to detect effects. Furthermore, the authors stopped analyses after not finding a relationship between engagement and change in depressive symptoms, without assessing for mediational effects of change in negative cognitions on the relationship between engagement and change in depressive symptoms. It is also possible that there is no relationship between therapeutic engagement and change in negative cognitions. To this author's knowledge, no other studies besides Shirk and colleagues (2013), have tried to assess negative cognitions as a mediator between engagement and change in depressive symptoms in youth. This one study had mixed results, arguing for the need to further explore this topic and what other variables may impact the effects.

Two adult studies have attempted to look at the relationship between engagement, core learning indicators, and treatment outcomes in depression. One study found that homework related to reductions in depressive symptoms and that use of cognitive restructuring skills at 6-months post-treatment was related to maintaining reduced depressive symptoms (Neimeyer & Feixas, 1990). However, this study did not find a relationship between homework and cognitive restructuring. Another study did not find a relationship between homework completion and cognitive restructuring but found that a composite of: willingness

to engage in homework, homework compliance, and skill acquisition— predicted a decrease in self-report depressive symptoms (Neimeyer, Kazantzis, Kassler, Baker, & Fletcher, 2008). There is evidence CLIs could mediate the relationship between *engagement* in CBT and change in symptoms for youth with depression but this relationship with depressed youth has not been properly assessed. There still remains a significant gap in the youth depression literature in terms of understanding what forms of engagement may predict changes in depressive symptoms and whether certain core learned CBT skills may mediate this relationship. Additionally, these mixed findings suggest that some other variable could be moderating the relationship between engagement, CLIs, and depressive symptoms.

Moderators

Not every CBT protocol for treating depression may be effective for all clients with depression, so in order to individualize psychotherapy and make it more effective for a wide range of clients, it is important to know under what conditions treatments work best and in what cases treatments may need to be adapted (Kazdin, 2007). Understanding these moderators of treatment can help psychotherapists discern why certain aspects of psychotherapy may be effective for some clients (Kazdin, 2007). One concern some have about CBT is how effective it may be for those with varying levels of cognitive, developmental, or language abilities (Doherr, Reynolds, Wetherly, & Evans, 2005; Shirk et al., 2013).

Oral Language Proficiency as Moderator

Oral language proficiency may help explain the inconsistent findings between engagement, CLIs, and treatment outcomes for youth depression. CBT often involves reading, writing, and verbally expressing thoughts and feelings. All of these processes in CBT may make therapy more difficult for youth with language deficits or youth who are developmentally younger and less able to express themselves orally or in writing. Furthermore, cognitive restructuring requires a complex manipulation and understanding of language in which one must recognize and challenge one's thoughts – all of which is done verbally in session. Thus, it has been hypothesized that language abilities may impact how well youth are able to learn some of the skills taught during treatment sessions (Mohlman & Gorman, 2005; Shirk et al., 2013).

There are also concerns about the developmental appropriateness of CBT for certain youth depending on their developmental stage across a number of domains (e.g., cognitive, emotional; Garber, Frankel, & Herrington, 2016). Supporting this idea is the scant evidence for psychotherapies for children under age 12 with depression, and evidence that older youth receive greater benefit from CBT than younger youth (Forti-Buratti, Saikia, Wilkinson, & Ramchandani, 2016; Weersing, Jeffreys, Do, Schwartz, & Bolano, 2017). Such findings suggest that there may be certain abilities that make it more difficult for younger youth to learn certain skills in psychotherapy. It has been hypothesized that younger youth lack certain cognitive-developmental abilities, which may hinder their ability to benefit from CBT (Durlak, Fuhrman, & Lampman, 1991).

CBT research often includes youth who have average or above average cognitive abilities and excludes those with lower cognitive or language abilities, out of concern that youth with lower cognitive abilities may be unable to benefit from CBT (Suveg, Comer, Furr, & Kendall, 2006; TADS Team, 2003). For example, one of the largest RCTs conducted with youth with depression excluded youth with a Full Scale IQ under 80, out of concern that they would not benefit from CBT (TADS Team, 2003). Some evidence supports the idea that lower cognitive abilities may moderate treatment effects of CBT and have found that lower cognitive abilities may decrease the effectiveness of CBT with adolescents (Holmbeck, O'Mahar, Abad, Colder, & Updergrove, 2006). Furthermore, one study found that children with higher IQs were better able to complete cognitive tasks required for changing negative cognitions (Doherr et al., 2005). These studies do not emphasize whether certain aspects of the child's IQ were more predictive of treatment outcomes (e.g., processing speed, verbal abilities, perceptual reasoning, etc.).

Studies have yet to tease apart whether specific cognitive composites (e.g., processing speed, working memory, verbal abilities, or perceptual reasoning) or whether specifically language abilities impact skill acquisition or treatment outcomes. Additionally, a large proportion of those with psychiatric problems also have (oftentimes undiagnosed) language deficits (Cohen, Barwick, Horodezky, Vallance, & Im, 1998; Toppelberg & Shapiro, 2000). There is evidence that children with language problems tend to have increased emotional, behavioral, and social problems including poor social skills and fewer social relationships than

those without language impairments (Botting & Conti-Ramsden, 2000; Fujiki, Brinton, & Todd, 1996; Toppelberg, Medrano, Morgens, & Nieto-Castanon, 2002). Furthermore, oral language proficiency has been found to impact academic outcomes (Vogel & Adelman, 1990). No one has explored the impacts of oral language proficiency on CLIs or treatment outcomes in psychotherapy.

The concept of language abilities impacting treatment effects is further muddled by the United States' growing immigrant population, with an increasing number of youth who come from families not fluent in English. The United States has a growing ethnic and linguistic minority population, with over 60 million households in the United States speaking a language other than English and with over 25 million households reporting speaking English *less than* "Very Well" (U.S. Census Bureau, 2015). The U.S. Census Bureau (2015) indicates Spanish as the most common language, other than English, being spoken throughout U.S. households. However, several studies have excluded youth who are not fluent in English or whose parents are not fluent in English from RCTs of depression (TADS Team, 2003). For instance, the TADS study excluded clients or clients' parents who were not fluent in English since they would not be able to fill out the study measures (TADS Team, 2003). This makes it difficult to assess the effectiveness of treatment on diverse populations and difficult to understand how youths' English proficiency may impact treatment outcomes. Those who are proficiently bilingual possess several psychological, social, and cognitive advantages over monolingual individuals including improved mental health, higher self-esteem, higher academic and socio-economic outcomes, and increased

cognitive flexibility and reasoning skills (Diaz, 1985; Han, 2010; Kroll, 2009; Lee & Hatteberg, 2015). However, for both monolingual and bilingual children, the presence of a language disorder predicts greater mental health concerns (Toppelberg et al., 2002). Little research has examined ways oral language proficiency may impact learning of CBT skills or CBT outcomes, both in the general population, and with bilingual children or English language learners. If psychotherapeutic groups are being conducted in English, it would be important to know whether English oral language proficiency may impact the relationship between therapeutic engagement, youths' learning of CBT skills, and treatment outcomes. This study will examine the role of English oral language proficiency in the relationship between youth therapeutic engagement, learning core skills (via CLIs of social functioning and negative cognitions), and treatment outcomes.

Treatment: Group CBT for Youth with Depression

This study will examine how engagement impacts treatment outcomes specifically for youth who participated in a manualized video-guided group CBT program called Act & Adapt (Polo et al., 2009). This protocol was derived from the Primary and Secondary Control Enhancement Therapy (PASCET; Weisz et al., 1999) which has been established as efficacious in decreasing depressive symptoms in school-aged youth (Weisz, Thurber, Sweeney, Proffitt, & LeGagnoux, 1997). This treatment focuses on enhancing primary control skills (skills to influence one's condition) and secondary control skills (skills to influence one's subjective experience of one's condition), with the primary control skills mapping onto the program's ACT skills (e.g., problem solving, mood enhancing

behavioral activation, relaxation techniques, and positive self-presentation skills), and the secondary control skills mapping onto the program's ADAPT skills (e.g., recognizing and changing unrealistic negative thoughts, distraction, utilizing social supports, and reframing negative events).

See Table 1 for a list of skills taught in Act & Adapt.

Table 1. *List of Skills Taught in Act & Adapt*

| |
|--|
| Act Skills |
| 1. Problem solving skills to help generate, evaluate, and implement solutions |
| 2. Selection of mood enhancing and social activities |
| 3. Relaxation skills (progressive muscle relaxation, deep breathing, and guided imagery) and calming techniques |
| 4. Positive self-presentation skills to help establish and maintain healthier relationships with peers and adults |
| Adapt Skills |
| 5. Identify and change negative unrealistic thoughts (cognitive negative errors) to more positive realistic thoughts |
| 6. Distraction to avoid rumination |
| 7. Increase and utilize social supports |
| 8. Reframe unchangeable negative situations by identifying positive aspects |

Many of the skills taught during the program, youth were able to apply to improve social skills and social functioning. For instance, problem solving skills were often applied to various social contexts to improve relationships with peers and family members. Additionally, youth were taught not only to select mood enhancing activities that they could do by themselves but also activities they could do with others to increase social interactions. Brief relaxation strategies were taught to be used prior to or during stressful situations (including stressful *social* situations). Positive self-presentation skills were taught to help youth focus on how their body language, behaviors, and choice of words could impact both their mood

and social relationships. Moreover, youth were taught to utilize available social supports to help improve mood.

Several skills also focused on decreasing negative cognitions. For instance, youth learned to identify whether they were engaging in overly negative cognitions (i.e., “BLUE” thoughts) and then taught to look for evidence to change overly negative cognitions to more positive and realistic thoughts. Additionally, youth learned to reframe negative situations by highlighting positive aspects that can result from a negative situation. Furthermore, if youth found themselves ruminating on overly negative thoughts surrounding unchangeable circumstances, youth learned about how distraction could improve one’s mood by reducing rumination.

Some youth participated in a version of Act & Adapt called Modular Act & Adapt (Polo, 2015), which in addition to the standard Act & Adapt protocol, also involved a website component and parent meetings. The term Act & Adapt is utilized throughout this study in order to encompass both the Modular Act & Adapt protocol and the standard Act & Adapt protocol.

Rationale

Several studies have indicated that increased engagement in psychotherapy predicts better treatment outcomes (Glenn et al., 2013; Schley, Yuen, Fletcher, & Radovini, 2012). Less is known regarding the extent to which this relationship exists and what factors can explain the association between engagement and outcomes. The CBT model suggests that practice and acquisition of cognitive and behavioral skills underlies change (Beck et al., 1979). However, whether learning

specific core CBT skills mediates the relationship between engagement and outcomes has been minimally explored. Most mediation studies within psychotherapy have been conducted comparing CBT to other conditions (e.g., control or other psychotherapy) – few of which have specifically looked at depression in youth and even fewer have examined the role of engagement. The literature surrounding youth therapeutic engagement and mediation is inconclusive due to contradicting findings.

Treatment outcomes of CBT could be better understood by examining different constructs of engagement, CLIs, and examining potential moderating variables that may impact this relationship. Oral language proficiency may be an important candidate to evaluate as a moderator because of concerns that youth with lower cognitive or language abilities are at increased risk of having emotional concerns and may have more difficulty with standard CBT (Doherr et al., 2005; Suveg et al., 2006; Toppelberg & Shapiro, 2000). However, the nature of the relationship between engagement, learning CBT skills, and treatment outcomes has not been explored.

More specifically, this study aims to: 1) examine youth therapeutic engagement as a predictor of treatment effects in a school-based group CBT program delivered to a primarily ethnic minority sample of youth; 2) explore CLIs (specifically social functioning and negative cognitions) as variables that may explain the relationship between engagement and treatment outcomes; and 3) examine oral language proficiency as a moderator of the relationships between engagement, CLIs, and treatment outcomes. This study is especially relevant for

ethnic minority youth with depression since they have lower rates of engagement in mental health services (Merikangas et al., 2011) and there are few studies that have documented effective and culturally appropriate interventions for depression among ethnic minority youth.

Hypotheses

Hypothesis 1. Youth therapeutic engagement will predict treatment effects.

Youth therapeutic engagement will be evaluated via homework completion rates as well as consumer satisfaction ratings. It is expected that youth with higher homework completion rates will experience greater decreases in depressive symptoms over the course of treatment. Similarly, it is expected that youth who report higher consumer satisfaction will experience greater decreases in depressive symptoms over the course of treatment.

Hypothesis 2a. Youth therapeutic engagement will predict changes in core learning indicators.

It is expected that youth with higher homework completion rates and higher consumer satisfaction ratings will have greater decreases in negative cognitions over the course of treatment. Similarly, youth with higher homework completion rates and higher consumer satisfaction ratings will experience greater increases in social functioning over the course of treatment.

2b. Changes in core learning indicators will predict treatment effects.

It is expected that youth with higher decreases in negative cognitions and higher increases in social functioning will report greater decreases in depressive symptoms over the course of treatment.

2c. Core learning indicators will mediate the relationship between youth therapeutic engagement and changes in depressive symptoms.

It is expected that the relationship between youth therapeutic engagement (i.e., homework completion and consumer satisfaction) and changes in depressive symptoms will be at least partially mediated by changes in CLIs (specifically negative cognitions and social functioning). See Figure 1 for the proposed mediation model.

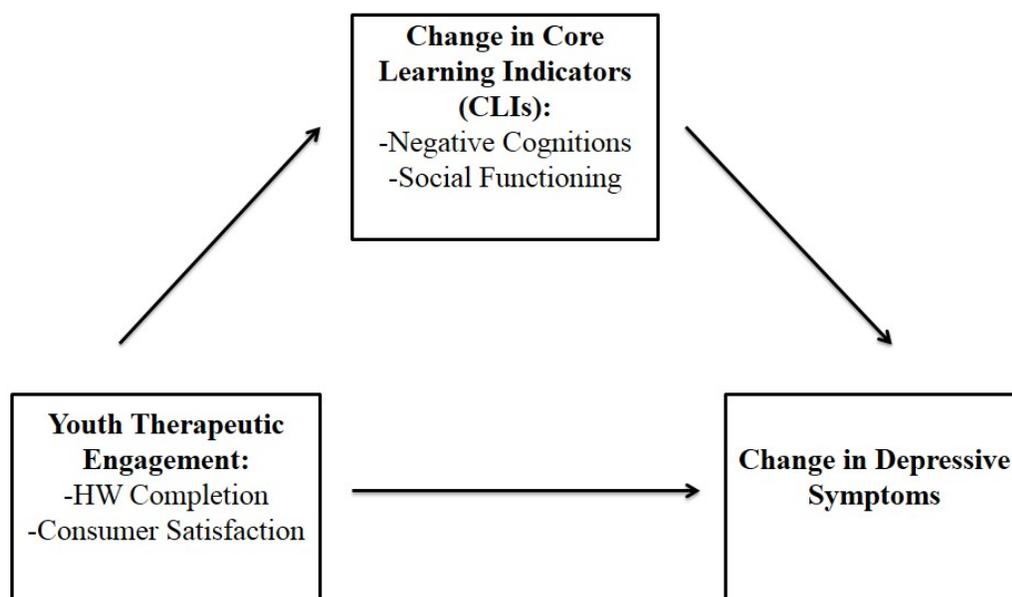


Figure 1. CLIs mediating the relationship between youth therapeutic engagement and changes in depressive symptoms.

Hypothesis 3a. Oral language proficiency will moderate the relationship between youth therapeutic engagement and changes in depressive symptoms.

It is expected that higher youth therapeutic engagement will lead to decreases in depressive symptoms over the course of treatment, but especially

among youth with high oral language proficiency. See Figure 2.

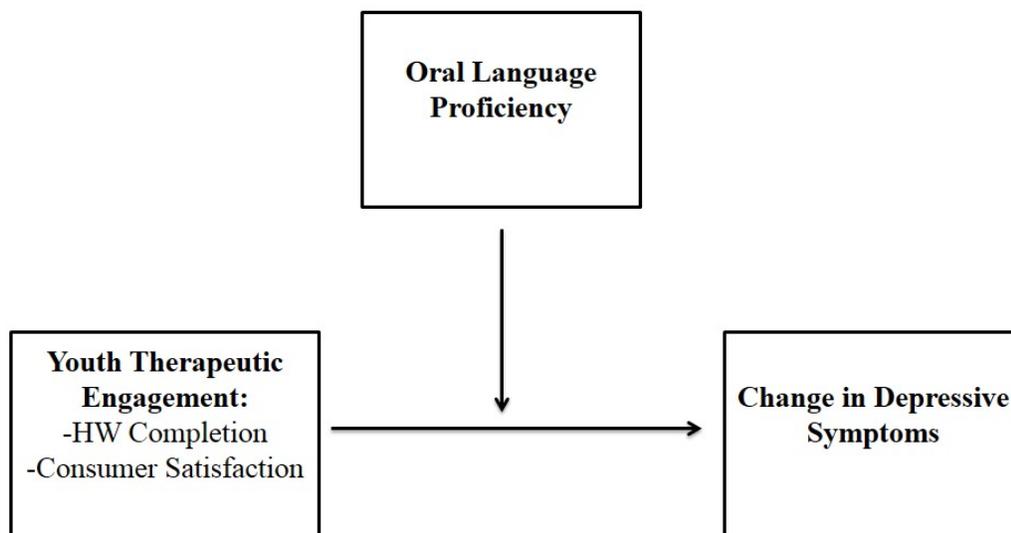


Figure 2. Oral language proficiency moderating the relationship between youth therapeutic engagement and changes in depressive symptoms.

Hypothesis 3b. Oral language proficiency will moderate the relationship between youth therapeutic engagement and changes in core learning indicators.

It is expected that higher youth therapeutic engagement will lead to improvements in CLIs, but especially among youth with high oral language proficiency. See Figure 3.

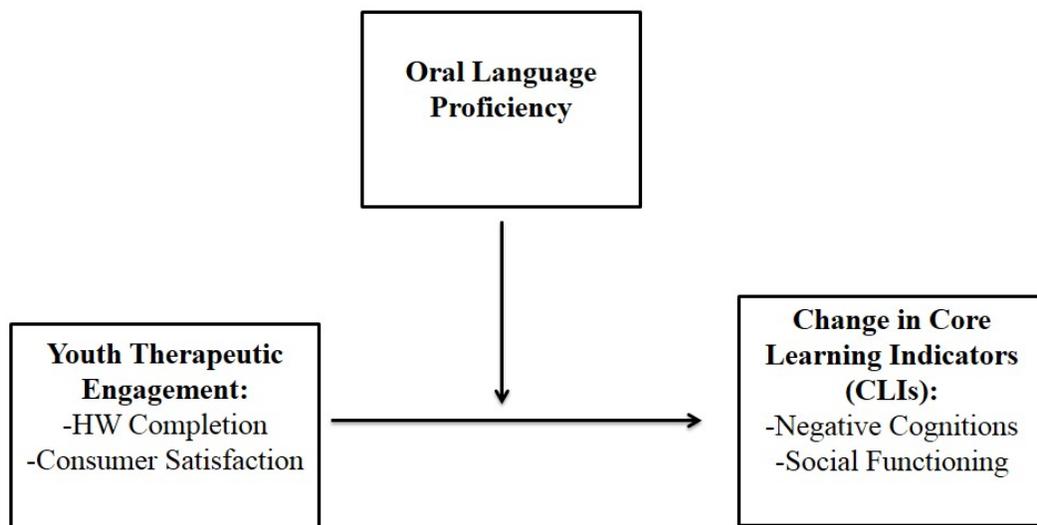


Figure 3. Oral language proficiency moderating the relationship engagement and changes in core learning indicators.

Hypothesis 4. Oral language proficiency will moderate the relationship between youth therapeutic engagement, changes in core learning indicators, and changes in depressive symptoms.

It is expected that changes in CLIs will mediate the relationship between engagement and decreases in depressive symptoms, but especially among youth with high oral language skills. See Figure 4.

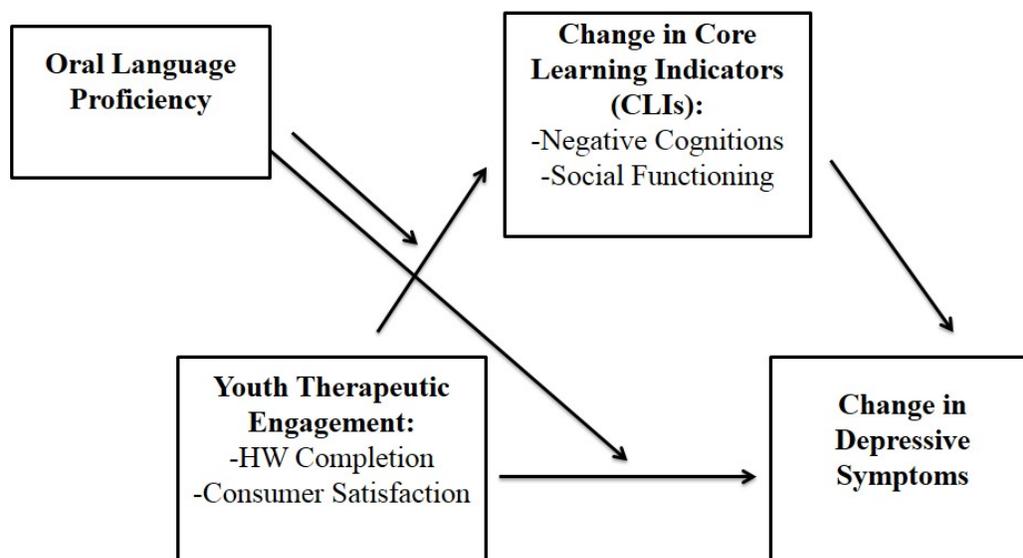


Figure 4. Hypothesis 4. Moderated mediation model of oral language proficiency moderating engagement and depressive symptoms through CLIs.

Method

This study combines data from two clinical trials. The first sample was enrolled as part of an open trial ($n = 31$). The second sample includes participants who were enrolled in a randomized control trial (RCT; $n = 68$). Both trials assessed the impact of a group cognitive behavioral therapy program called Act & Adapt, (Polo et al., 2009). All portions of the study were approved by the DePaul University Institutional Review Board.

Participants

Participants were 99 youth who, at the time of enrollment, exhibited moderate to severe, and chronic, depressive symptoms. Youth were in 5th - 8th

grade and their ages ranged from 10 to 14 years of age ($M = 12.03$, $SD = 1.04$). Most participants (63.6%) were girls ($n = 63$) and 36.4% of participants were boys ($n = 36$). In terms of ethnic background, most youth were Latino (85.9%), followed by African American (6.1%), mixed ethnicity (6.1%), and European-American (2.0%). The Latino subgroups included Mexican-American (58.9%), mixed Latino (17.8%; e.g., Mexican-American and Puerto Rican), Puerto Rican (11.1%), mixed Latino and non-Latino (6.7%; e.g., European American and Latino) and Central/South American (5.5%). Most youth (91.7%) were born in the United States (including Puerto Rico), while 8.3% were born in another country. Of the parents interviewed for the study, 30.9% were born in the United States and 69.1% were born in another country. The majority of youth were of low-income backgrounds. Over two-thirds (69.1%) of parents reported annual household incomes at, or below, \$30,000, while the remaining (30.9%) reported incomes above this cut off.

Measures

Engagement data were collected every session throughout the program. Measures of depressive symptoms and CLIs were collected before treatment began and again after treatment ended. Assessments of oral language proficiency were conducted before the program.

Engagement

Two measures of engagement were considered for this study: homework completion and consumer satisfaction. All of the groups were conducted in a

school-based setting, with the majority of groups conducted, at least partially, during school hours.

Homework Completion

Weekly homework was assigned to group members and completed in their ‘practice books.’ Therapists reviewed homework at the beginning of each session and tracked completion of the assignments in a log. Scanned copies of the student practice books were also made to help review and verify the therapist logs. Points were awarded for homework completion. Each assignment completed and brought to the session was worth 1 point. In some sessions, multiple homework assignments were given, and 1 point was given for each completed assignment. Any assignment that was partially completed or completed at the beginning of the session was given 0.5 points. Finally, 0 points were given if the student did not complete the assignment. The total number of homework assignments completed per student ranged from 0 to 20 ($M = 13.52$, $SD = 4.37$). Homework completion rates are used in the analyses and were computed as the percentage of points earned out of the possible total points for any given group. Homework completion rates ranged from 0 to 100% ($M = 67.60$, $SD = 21.84$).

Consumer Satisfaction

At the end of each session, therapists asked group members to fill out a form with questions related to that session. The first question in that form asks youth to evaluate their satisfaction with the session (“I liked today’s group.”) on a 4-point Likert scale from 1 (Very False) to 4 (Very True). Youths’ average ratings of satisfaction across treatment will be used for analyses ($M = 3.7$, $SD = .29$).

Core Learning Indicators (CLIs)

As noted earlier, building social skills and reframing negative cognitions were a central focus of the Act & Adapt intervention. Therefore, to examine the degree to which these skills were acquired by youth, measures of social functioning and endorsement of negative cognitions were used as CLIs.

Social Functioning

The CLI of social functioning was evaluated through the Loneliness and Social Dissatisfaction Scale (LSDS; Asher, Hymel, and Renshaw, 1984). The LSDS is a 16-item measure, which youth rate statements related to loneliness, social satisfaction/dissatisfaction, and social/peer acceptance on a likert-scale from 1(Always True) to 5 (Not at all True). Sample items include: “It’s easy for me to make new friends” and “I get along with other kids.” Lower numbers on this scale indicate higher degree of social functioning. This measure had good internal consistency at pre- ($\alpha = .87$) and post-treatment ($\alpha = .89$).

Negative Cognitions

The CLI of negative cognitions was assessed using a shortened and revised version of the *Children’s Negative Cognitive Errors Questionnaire-Revised* (CNCEQ-R; Weisz, Francis, & Bearman, 2010). This 16-item measure derived from the *Children’s Negative Cognitive Errors Questionnaire* (Leitenberg, Yost, & Carroll-Wilson, 1986) but was shortened and revised, maintaining internal consistency ($\alpha = .82$) and test-retest reliability. This measure presents youth with hypothetical situations (e.g., You play basketball and score 5 baskets, but you miss two really easy shots. After the game you think, ‘I was awful today in basketball.’)

across academic and social domains. Youth are asked how likely they would have had that same negative cognition on a 4-point Likert scale from 1 (Yes) to 4 (No). The scores are then reverse scored so that a higher number indicates a higher number of negative cognitions. For this study, this measure had excellent internal consistency at pre-treatment ($\alpha = .92$) and post-treatment ($\alpha = .93$).

Oral Language Proficiency

Oral language proficiency was assessed using the *Woodcock-Muñoz Language Survey - Revised* (WMLS-R; Alvarado, Ruef, & Schrank, 2005). Two subtests (Picture Vocabulary and Verbal Analogies) from the WMLS-R were administered to obtain an Oral Language Composite. Both subtests were administered in English to youth prior to treatment. For those of Latino backgrounds, the subtests were administered in both English and Spanish

The first subtest, Picture Vocabulary, asks youth to verbally produce the names of various pictured items (e.g., expect the child to produce the word ‘elephant,’ if shown a picture of an elephant). Items become progressively more difficult as the test progresses. This subtest measures expressive language abilities and requires the client to recognize the item and verbally retrieve the item’s name. The Picture Vocabulary subtest has median reliability of .91 (Alvarado et al., 2005).

For the second subtest, Verbal Analogies, the examiner reads aloud 3 of 4 words in an analogy. Youth are expected to infer the relationship between the first pair of words and apply this relationship to the third, in order complete the analogy. An example item could be ‘carrot is to vegetable as apple is to ...’ Items become progressively more difficult as the test progresses. In addition to basic

vocabulary, this subtest involves a more complex understanding of oral language, involving: listening skills, expressive language skills, and fluid verbal reasoning skills. It has shown a median reliability of .90.

The Verbal Analogies and Picture Vocabulary subtests create a composite oral language proficiency score. The English Oral Language Standard Scores for this sample ranged from 63 to 129, with a mean of 89.44 ($SD = 11.63$). Since the group psychotherapy sessions were conducted in English, only the English Oral Language Standard Scores were utilized for analysis. Seventeen youth were monolingual English speaking and thus were not administered the Spanish WMLS; therefore, only 65 of the youth completed the WMLS-R in Spanish. This is one reason why Spanish oral language proficiency is not included in analyses.

Depressive Symptoms

Youths' symptoms of depression were evaluated using the *Children's Depression Inventory* (CDI; Kovacs, 1992), a 26-item measure (suicidal ideation item omitted), which asks youth to choose one of three statements that best matches how they have felt in the past two weeks. Youth responses are scored as 0, 1, or 2 for each set of statements, depending on the severity of the statement they choose (e.g. I am sad once in a while - 0; I am sad many times -1; I am sad all the time -2). Youth were administered the CDI at pre- and post- treatment timepoints. This measure had good internal consistency at pre-treatment ($\alpha = .88$) and post-treatment ($\alpha = .87$).

Procedure

Recruitment

Most youth ($n = 87$) were initially recruited as part of a larger longitudinal study, which began by administering a classroom survey, which included the Children's Depression Inventory (CDI). The remaining youth ($n = 15$) were identified via teacher or staff referrals, and were administered a brief one-on-one interview which also included the CDI. Youth from both sources (classrooms and referrals) were further evaluated for eligibility if they scored at, or above, a minimum threshold on the CDI (e.g., 9 points).

Next, identified at-risk youth, and their parents, were invited to be interviewed separately to further assess depressive symptoms and impairment, which included the depressive disorder modules from the Diagnostic Interview Schedule for Children (DISC-IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). All of the interviews with youth were completed in English. About half of the parent interviews were conducted in English (47.6%) and half in Spanish (52.4%). Students were eligible for the program if they: a) showed a chronic high risk of depressive symptoms on the CDI (e.g., 9 or above on both administrations) as well as endorsing at least moderate impairment on the DISC-IV or b) if they met criteria for a depressive disorder per reports on the DISC-IV.

Youth were excluded from the program if they were already receiving treatment for depression. If youth were eligible for the program, youth and parents were given an overview of the program and given the option of enrolling. All treatment groups were conducted in English. Written parent consent and child assent were obtained for all stages of study procedures (classroom-wide surveys, parent and child interviews, and treatment groups).

Act & Adapt Groups

All of the youth enrolled received therapy in a group setting. A total of 22 groups, each consisting of 3 to 8 students ($M = 5.19$, $SD = 1.48$), were formed across 9 public schools in the city of Chicago. Groups were conducted at schools either before, during, or after school depending on school administrations' preference and clients' availability. Over half of the students ($n = 55$; 13 groups) were in the Modular Act & Adapt condition, which included parent meetings and a website component. The rest of students ($n = 44$; 9 groups) were part of the standard Act & Adapt program. As noted earlier, the term Act & Adapt groups is utilized throughout in order to encompass both the Modular Act & Adapt condition and the standard Act & Adapt condition.

The Act & Adapt groups typically met weekly for 10-12 sessions, with each session lasting 90 minutes. Each week youth learned about one or more of the 8 coping skills. Each student received his/her own practice book, which included both in-session assignments and homework assignments. A typical group session began with a mood rating followed by a review of homework that covered the skill learned the previous week. Each week the group would view video segments related to the skill being taught and participate in various activities to practice the skills during group. At the end of each group session, youth provided feedback ratings about their experience in that week's session. Youth were assigned homework assignments involving practicing the skill over the upcoming week. Parents received weekly handouts, in their language of preference, outlining the skills taught in the groups.

Each group member received a practice book in which they tracked earned points, wrote down their weekly moods, conducted in-session assignments and homework practice assignments. Group therapists gave clients points for attending the session, remembering to bring their practice book, and completing their homework assignment; clients also earned extra credit points for participation. Therapists logged earned points in a log and gave youth stickers in their practice book to help youth keep track of their own points. Youth were able to redeem their points for gift cards with every 2 points amounting to \$1 (typical maximum amount earned was \$25 worth of gift cards). Group therapists tracked group members' weekly attendance at groups. Attendance participation rates ranged from 71% to 100% ($M = 96.10\%$, $SD = 6.48\%$) of total possible sessions attended.

Groups were run by 22 different group therapists, whose training ranged from: clinical psychology doctoral students in their 1st through 6th year of training, Masters level clinicians from community agencies, to the program developer (Ph.D.). Training of therapists involved either weekly trainings for about 1 hour for 10 weeks or an intensive 2-day training, which involved participating in mock sessions of the manualized treatment. Group supervision with the project's primary investigator and other trained therapists was held weekly for an hour. Most groups were run with 2 therapists with new therapists paired with a more experienced therapist (who typically had run the program before). The mean number of groups run by each therapist was 1.73.

Results

A total of 102 clients participated in the program. For data analyses, one child was removed from analyses because she had a diagnosis of bipolar disorder

and missed several groups (including those in which several skills were taught) due to inpatient hospitalization; thus her engagement data was not able to be accurately determined because of the significant number of missed sessions from hospitalization outside of her control. In order to assess for multivariate outliers, Mahalanobis distance was calculated entering the following measures as independent variables: oral language proficiency, LSDS, CNCEQ, homework practice percentage, and consumer satisfaction mean; CDI post was entered as the dependent variable. A critical chi-square value of 20.52 was indicated as a critical cut-off score using $df = 5$ and $p = .001$, which revealed two outliers, both of which were removed from analyses.

The remaining 99 participants were included in all of the analyses for Hypothesis 1. One participant had missing data on the pre-LSDS scale and one participant had missing data on the pre-CNCEQ scale. Therefore, for Hypotheses 2 - 4, those two participants were excluded from analyses that included those measures. Finally, only 82 of the 99 participants were administered the WMLS-R prior to the intervention. Therefore, analyses for Hypotheses 3-4 excluded the 17 participants that did not have oral language proficiency scores.

Table 2 lists the means, standard deviations, and Pearson correlations of the main study variables. Gender was dummy coded (0 = boys, 1 = girls). Girls reported higher consumer satisfaction ($r = .33, p < .01$) and higher homework completion rates ($r = .35, p < .01$) than boys. Additionally, post-CDI was significantly correlated with post-LSDS ($r = .52, p < .001$) and post-CNCEQ ($r = .52, p < .001$). Paired t-tests were run on CDI, CNCEQ, and LSDS, and significant

changes were found from pre- to post-treatment on the CDI, $t(98) = 6.24, p < .001, d = 0.53$, CNCEQ, $t(97) = 6.12, p < .001, d = 0.32$ and LSDS, $t(97) = 4.20, p < .001, d = 0.64$. Differences in pre- to post- symptoms of depression were examined using McNemar chi-square tests. Significantly more youth had moderate symptoms of depression (CDI total score of 19 or greater) based on established guidelines (Rivera, Bernal, & Rosselló, 2005) prior to treatment compared to the end of treatment (25.3% versus 10.1% , $\chi_2 = 24.71, p < .001$).

Table 2.
Correlations Table

| | | | | | Correlations | | | | | | | | | |
|----|------------------------------|----|-------|-------|--------------|-------|-------|-------|-------|-------|-------|------|-------|-----|
| | Variable | N | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | Homework Completion % | 99 | 67.60 | 21.84 | | | | | | | | | | |
| 2 | Consumer Satisfaction | 99 | 3.77 | .29 | .21* | | | | | | | | | |
| 3 | Pre CDI | 99 | .53 | .29 | .12 | -.03 | | | | | | | | |
| 4 | Post CDI | 99 | .39 | .27 | .19 | -.03 | .65** | | | | | | | |
| 5 | Pre LSDS | 98 | 2.31 | .71 | -.02 | .003 | .30** | .16 | | | | | | |
| 6 | Post LSDS | 99 | 1.89 | .63 | .18 | -.02 | .32** | .52** | .44** | | | | | |
| 7 | Pre CNCEQ | 98 | 2.12 | .60 | .16 | .02 | .53** | .26** | .37** | .34** | | | | |
| 8 | Post CNCEQ | 99 | 1.91 | .70 | .16 | .002 | .40** | .42** | .36** | .43** | .69** | | | |
| 9 | Oral Language Standard Score | 82 | 89.44 | 11.63 | .19 | .02 | .15 | .10 | .13 | .19 | -.03 | -.11 | | |
| 10 | Gender | 99 | | | .35** | .33** | .09 | .19 | -.03 | .01 | .07 | .13 | -.08 | |
| 11 | Age | 99 | 12.03 | 1.04 | -.05 | -.09 | -.06 | -.15 | .02 | -.13 | .11 | .03 | -.22* | .13 |

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; CDI = Children's Depression Inventory; LSDS = Loneliness and Social Dissatisfaction Scale; CNCEQ = Children's Negative Cognitive Errors Questionnaire-Revised

All analyses controlled for gender and age. For hypotheses analyzing change via a post-treatment score, the pre-treatment score was entered as a control. Note the presented analyses were also run controlling for treatment condition (i.e.,

standard Act & Adapt vs. Modular Act & Adapt) to see if results differed and no significant differences were found.

Hypothesis 1. Youth therapeutic engagement will predict treatment effects.

Hierarchical regression models were run testing effects for both engagement variables (i.e., homework completion and consumer satisfaction) on youth's depressive symptoms at post-treatment, while controlling for age, gender, and pre-treatment depressive symptoms. As can be seen in Table 3 neither of the engagement variables were directly related to post-treatment outcomes; neither homework completion percentage ($\beta = .06, t(94) = 0.70, p > .05$), nor consumer satisfaction ($\beta = -.08, t(94) = -0.97, p > .05$) was directly associated with changes in depressive symptoms on the CDI.

Table 3.

Hierarchical Regression: Engagement Predicting Post CDI

| Model: Post CDI | β | t | p | R^2 | ΔR^2 | ΔF |
|------------------------------|---------|-------|-------|-------|--------------|------------|
| Step 1 | | 1.4 | .17 | .46 | .46 | 26.48*** |
| Pre CDI | .60 | 8.26 | <.001 | | | |
| Gender | .15 | 1.90 | .06 | | | |
| Age | -.13 | -1.70 | .09 | | | |
| Step 2 | | | | .46 | .003 | .49 |
| Homework | 0.06 | 0.70 | .48 | | | |
| Step 2 | | | | .46 | .005 | .93 |
| Consumer Satisfaction | -0.08 | -0.97 | .34 | | | |

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Hypothesis 2a. Youth therapeutic engagement will predict changes in core learning indicators.

Hierarchical regression models were run, testing effects for each engagement variable (i.e., homework completion and consumer satisfaction) on each CLI (i.e., post-treatment LSDS and CNCEQ scores, controlling for pre-

treatment scores). As can be seen in Table 4, the engagement variables were not associated with changes in social functioning (i.e., LSDS); neither homework completion percentage ($\beta = .19, t(93) = 1.93, p > .05$) nor consumer satisfaction ($\beta = -.05, t(93) = -.44, p > .05$) was directly associated to changes in social functioning.

Table 4.
Hierarchical Regression: Engagement Predicting Social Functioning (Post LSDS)

| Model: Post LSDS | β | t | p | R^2 | ΔR^2 | ΔF |
|------------------------------|---------------------------|-----------------------|-----------------------|-------------------------|--------------------------------|------------------------------|
| Step 1 | | | | 0.21 | 0.21 | 8.53*** |
| Pre LSDS | .44 | 4.77 | <.001 | | | |
| Gender | .03 | .31 | .76 | | | |
| Age | -.14 | -1.52 | .13 | | | |
| Step 2 | | | | 0.24 | 0.03 | 7.27 |
| Homework | 0.19 | 1.93 | .06 | | | |
| Step 2 | | | | 0.21 | 0.002 | .20 |
| Consumer satisfaction | -.05 | -0.44 | .65 | | | |

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Likewise, as evident in Table 5, the engagement variables were not associated with changes in negative cognitions (i.e. CNCEQ); neither homework completion percentage ($\beta = .01, t(93) = .13, p > .05$), nor consumer satisfaction ($\beta = -.04, t(93) = -.47, p > .05$) was directly associated to changes in negative cognitions.

Table 5.
Hierarchical Regression: Engagement Predicting Negative Cognitions (Post CNCEQ)

| Model: Post CNCEQ | β | t | p | R^2 | ΔR^2 | ΔF |
|------------------------------|---------------------------|-----------------------|-----------------------|-------------------------|--------------------------------|------------------------------|
| Step1 | | | | 0.48 | 0.48 | 28.73*** |
| Pre CNCEQ | .68 | 9.15 | <.001 | | | |
| Gender | .07 | .95 | .34 | | | |
| Age | -.05 | -.71 | .48 | | | |
| Step 2 | | | | 0.48 | 0.0001 | .02 |
| Homework | 0.01 | 0.13 | 0.89 | | | |
| Step 2 | | | | 0.48 | 0.001 | .23 |
| Consumer satisfaction | -0.04 | -0.47 | 0.64 | | | |

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Hypothesis 2b. Changes in core learning indicators will predict treatment effects.

Hierarchical regression models were run to assess whether CLIs (i.e., LSDS and CNCEQ) were related to a reduction in depressive symptoms. As predicted in Hypothesis 2B, higher CLIs of both reduced negative cognitions and improved social functioning predicted a reduction in depressive symptoms. As evident in Table 6, increased social functioning (i.e., LSDS) predicted a change in depressive symptoms ($\Delta R^2 = .13$; $\Delta F = 25.52$, $p < .001$); specifically, an increase in social functioning (i.e., decreased post LSDS) was related to a decrease in depressive symptoms, $\beta = .41$, $t(92) = 5.05$, $p < .001$.

Table 6.
Hierarchical Regression: LSDS Predicting Post CDI

| Model: Post CDI | β | t | p | R^2 | ΔR^2 | ΔF |
|------------------------|---------------------------|-----------------------|-----------------------|-------------------------|--------------------------------|------------------------------|
| Step 1 | | | | 0.41 | .41 | 16.31 *** |
| Age | -.14 | -1.77 | .08 | | | |
| Gender | .15 | 1.80 | .07 | | | |
| Pre LSDS | -.01 | -.16 | .87 | | | |
| Pre CDI | .60 | 7.13 | <.001 | | | |
| Step 2: | | | | 0.51 | .13 | 25.52 *** |
| Post LSDS | 0.41 | 5.05 | <.001 | | | |

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Additionally, as can be seen in Table 7, a change in negative cognitions (i.e., CNCEQ), predicted change in depressive symptoms ($\Delta R^2 = .07$; $\Delta F = 11.62$, $p < .001$). Specifically, a decrease in negative cognitions indicated a decrease in depressive symptoms, $\beta = .36$, $t(92) = 3.41$, $p = .001$.

Table 7.
Hierarchical Regression: CNCEQ Predicting Post CDI

| Model: Post CDI | β | t | p | R^2 | ΔR^2 | ΔF |
|------------------------|---------------------------|-----------------------|-----------------------|-------------------------|--------------------------------|------------------------------|
| Step 1 | | | | 0.42 | 0.42 | 16.47*** |
| Age | -.14 | -1.68 | .10 | | | |
| Gender | .15 | 1.84 | .07 | | | |
| Pre CNCEQ | -.06 | -.65 | .52 | | | |
| Pre CDI | .63 | 6.64 | <.001 | | | |
| Step 2 | | | | 0.48 | 0.07 | 11.62*** |
| Post CNCEQ | .36 | 3.41 | .001 | | | |

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Hypothesis 2c. Core learning indicators will mediate the relationship between youth therapeutic engagement and changes in depressive symptoms.

Mediation processes were tested using Hayes' (2013) procedure for assessing indirect effects using the SPSS PROCESS macro (v2.16), controlling for age, gender, and pre-treatment depression and pre-treatment CLIs. The indirect effects of engagement on depressive symptoms via CLIs, were assessed using bootstrapping with 10,000 re-samples. Note that for Hypotheses 2c and 4 beta coefficients are reported using unstandardized beta coefficients.

Change in social functioning, as represented by post LSDS scores (controlling for pre LSDS scores), did not mediate the relationship between the engagement variables and changes in depressive symptoms. Specifically, the relationship between homework completion and post CDI scores was not mediated by social functioning, as the confidence interval of the indirect effect contains zero, $b = .0003$; 95% $CI = [-0.0004, 0.003]$. Likewise, the relationship between consumer satisfaction and depressive symptoms was not mediated by social functioning, as the confidence interval of the indirect effect contains zero, $b = .0003$; 95% $CI = [-0.10, 0.05]$.

Similarly, change in negative cognitions, as represented by post CNCEQ scores (controlling for pre CNCEQ scores), did not mediate the relationship between homework completion and change in depressive symptoms, $b = -0.0001$, 95% $CI = [-0.0007; 0.003]$. Nor did change in negative cognitions mediate the relationship between consumer satisfaction and change in depressive symptoms, $b = -.01$, 95% $CI = [-0.22, 0.18]$.

Hypothesis 3a. Oral language proficiency will moderate the relationship between youth therapeutic engagement and changes in depressive symptoms.

A moderation model was examined in order to assess whether English oral language proficiency moderates the relationship between engagement (i.e., homework completion and consumer satisfaction) and depressive symptoms. Hayes' (2013) PROCESS macro (v2.16; model 1) was run, bootstrapping with 10,000 resamples, to assess the interaction between English oral language proficiency and homework completion on youth depressive symptoms. Results indicated a significant conditional direct effect of English oral language proficiency on the relationship between homework completion and depressive symptoms, $\beta = -.0002$, $t(75) = -2.45$, $p < .05$; $\Delta R^2 = .05$, $p < .05$. Higher homework completion was associated with greater treatment effects for depression, but only among those with higher oral language proficiency.

Figure 5 depicts a graph of the relationship between homework completion and change in depression for youth at varying levels (where lowest = 10th, low = 25th, medium = 50th, high = 75th, and highest = 90th percentile) of English oral language proficiency for the sample. As can be seen, among those with highest

oral language proficiency, increased homework completion was associated with decreased depressive symptoms. In order to identify the specific values of English oral language proficiency that significantly interacted with homework completion, a regions of significance analysis was conducted using the Johnson-Neyman technique. The regions of significance analysis identified that for youth with an English oral language proficiency standard score of 100.53 and above (17.07% of the sample), higher homework completion rates were associated with greater decreases in depressive symptoms.

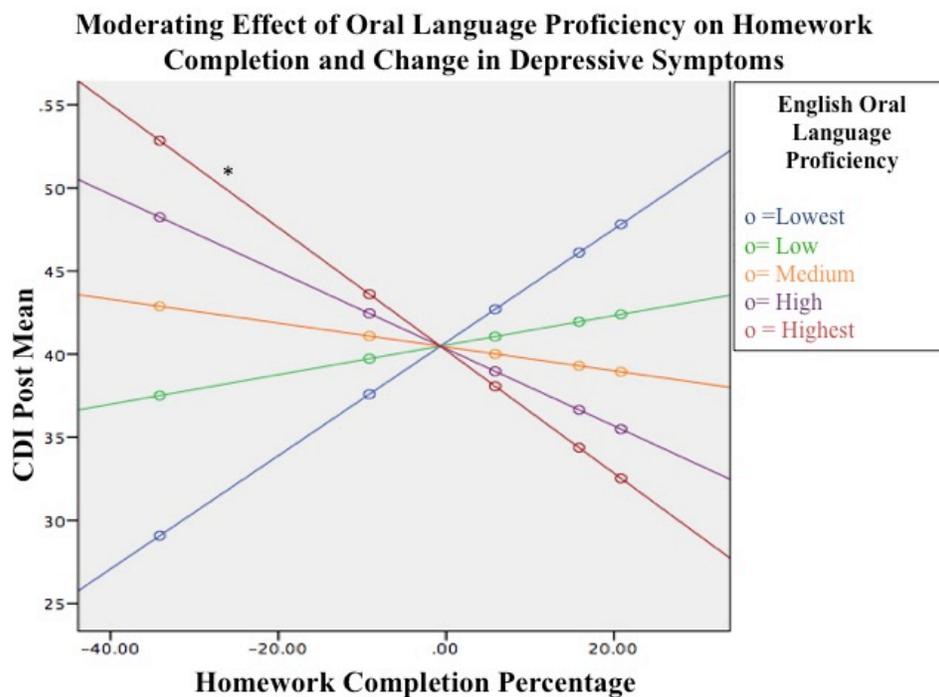


Figure 5. Moderating Effect of Oral Language Proficiency on Homework Completion and Change in Depressive Symptoms

A moderation model was examined in order to assess whether English oral language proficiency moderates the relationship between consumer satisfaction

and depressive symptoms using the Hayes (2013) PROCESS macro (v2.16; model 1), run bootstrapping with 10,000 resamples. The interaction between English oral language proficiency and consumer satisfaction was significant ($\beta = .01$, [$t(75) = 2.21$, $p < .05$]; $\Delta R^2 = .04$, $p < .05$) in predicting changes in depressive symptoms. Higher consumer satisfaction was associated with greater treatment effects for depression, but only among those with lower oral language proficiency. A regions of significance analysis was conducted using the Johnson-Neyman technique in order to identify the significant values at which English oral language proficiency significantly interacted with consumer satisfaction in predicting changes in depressive symptoms. The regions of significance analysis identified that youth with an English oral language proficiency standard score of 84.93 and below (30.86% of the sample) as statically significant. For those with higher oral language proficiency, consumer satisfaction was not statistically significantly associated with changes in depressive symptoms.

Figure 6 depicts the simple slopes of the relationship between consumer satisfaction and post-treatment depression symptoms (controlling for pre-symptoms) at different levels of English oral language proficiency. Higher consumer satisfaction was associated with decreases in depressive symptoms, but only among those with the low and lowest levels of English language proficiency.

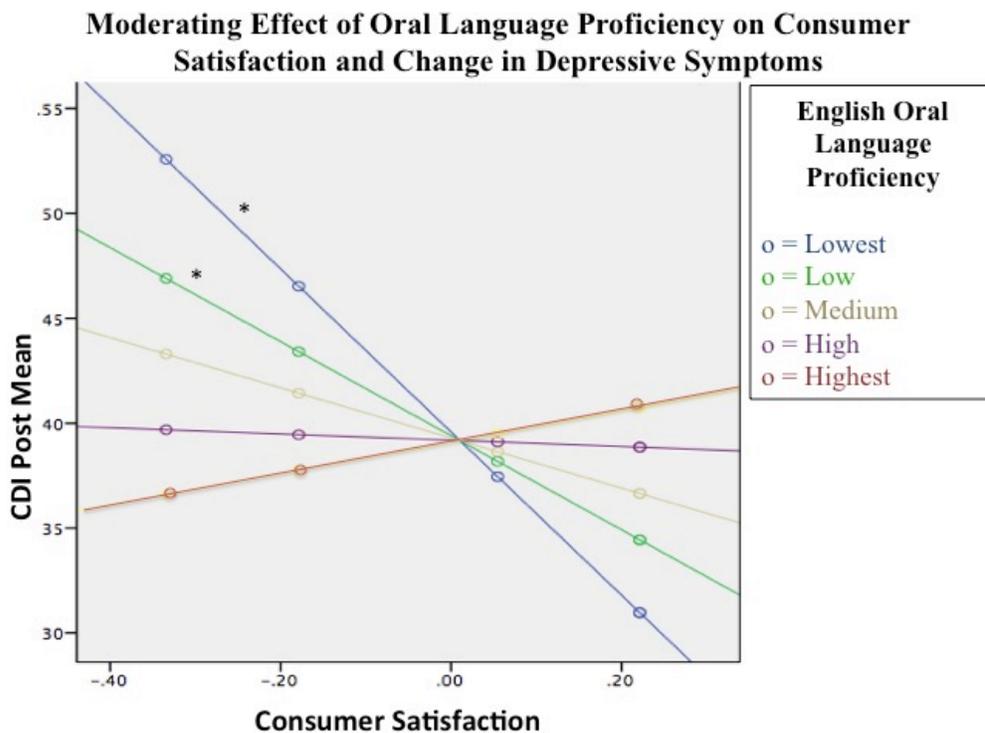


Figure 6. Moderating Effect of Oral Language Proficiency on Consumer Satisfaction and Change in Depressive Symptoms

Hypothesis 3b. Oral language proficiency will moderate the relationship between engagement and changes in core learning indicators.

A moderation model was examined in order to assess whether English oral language proficiency moderates the relationship between engagement (i.e. homework completion and consumer satisfaction) and CLIs (i.e. social functioning and negative cognitions). Utilizing Hayes' (2013) PROCESS macro for SPSS (v2.16), bootstrapping with 10,000 resamples was run to assess the interaction between English oral language proficiency and homework completion on social functioning. Contrary to hypotheses, a significant interaction was not found

between homework completion and English oral language proficiency in predicting the CLI of social functioning (i.e. post LSDS), $\beta = -.0003$, $t(75) = -.99$, $p > .05$; $\Delta R^2 = .01$, $p > .05$. Similarly, a significant interaction was not found between consumer satisfaction and English oral language proficiency in predicting social functioning, $\beta = .02$, $t(74) = .93$, $p > .05$; $\Delta R^2 = .01$, $p > .05$.

Similarly, a significant interaction was not found between English oral language proficiency and homework completion in predicting the CLI of negative cognitions (i.e. post CNCEQ), $\beta = -.0001$, $t(75) = -1.94$, $p > .05$; $\Delta R^2 = .03$, $p = .06$. Nor was there a significant interaction between English oral language proficiency and consumer satisfaction in predicting negative cognitions, $\beta = .01$, $t(74) = .45$, $p > .05$; $\Delta R^2 = .002$, $p > .05$.

Hypothesis 4. Oral language proficiency will moderate the relationship between youth therapeutic engagement, changes in core learning indicators, and changes in depressive symptoms. A moderated mediation model was run using the SPSS macro PROCESS (v2.16; Hayes, 2013) to test whether oral language proficiency moderates the CLI mediated relationship between engagement and depressive symptoms. Moderated mediation indices were estimated using a 95% bias-corrected bootstrap Confidence Interval (CI) of 10,000 re-samples using Hayes (2013)'s PROCESS macro (v2.16). Gender, age, and pre-treatment measures of CDI and CLIs were controlled for in the models.

Moderated Mediation Indices

Oral language proficiency was examined as moderating the indirect effect of engagement on depressive symptoms via CLIs. Results of the moderated

mediation indices for the different models are displayed Table 8. When oral language proficiency was examined as moderating the relationship between homework completion and depressive symptoms through negative cognitions, a marginally significant moderated mediation index was found, as the 95% *CI* did not cross zero, $b = -.0001$; 95% *CI* = $[-.0001, -.00001]$. This indicates the indirect effects statistically differed at various levels of the moderator. However, as evident in Table 9, when this relationship was probed at different levels of oral language proficiency, none of the indirect effects were found to be statistically significant at the 10th, 25th, 50th, 75th, and 90th percentiles of the moderator (i.e., all *CI*s included zero). This indicates that if the indirect effect is significant at a certain level, it is likely either below the 10th or above the 90th percentile, and thus likely only relevant for a very small proportion of the sample.

Table 8.
Index of Moderated Mediation

| Model Pathway | Index of Moderated Mediation | SE | Bootstrapped Lower Limit CI | Bootstrapped Upper Limit CI |
|--|-------------------------------------|-----------|------------------------------------|------------------------------------|
| With LSDS as Mediator | | | | |
| Homework → LSDS → CDI Post | -.00004 | .0001 | -.0001 | .00007 |
| Consumer satisfaction → LSDS → CDI Post | .002 | .003 | -.003 | .01 |
| With CNCEQ as Mediator | | | | |
| Homework → CNCEQ → CDI Post | -.0001 | .00003 | -.0001 | -.00001 |
| Consumer satisfaction → CNCEQ → CDI Post | .001 | .024 | -.0025 | .0067 |

Table 9.
Indirect Effects of Homework on CDI Post via CNCEQ at different levels of Oral Language Proficiency

| Percentile of WMLS | Indirect Effect | Bootstrap SE | Bootstrap Lower Limit CI | Bootstrap Upper Limit CI |
|--------------------|-----------------|--------------|--------------------------|--------------------------|
| 10 th | .009 | .0006 | -.00004 | .002 |
| 25 th | .0003 | .0004 | -.0005 | .001 |
| 50 th | -.0001 | .0004 | -.001 | .0005 |
| 75 th | -.0005 | .0005 | -.002 | .0002 |
| 90 th | -.001 | .001 | -.003 | .0001 |

As can be seen in Table 8, moderated mediation was not supported when examining the other models of moderated mediation. Specifically, moderated mediation was not supported when evaluating the role of oral language proficiency in moderating either engagement variables' (i.e., homework completion and consumer satisfaction) relationship to depressive symptoms through social functioning nor in consumer satisfaction's relationship to depressive symptoms through negative cognitions.

Discussion

This study was conducted in a school setting, with predominately low-income, ethnic minority youth, including a majority sample that are of Latino and immigrant household backgrounds, a group that has been found to be at higher risk for depression and less likely to have received mental health services (Merikangas et al., 2011). A primary goal was to improve understanding around the role of therapeutic engagement, CLIs, and English oral language proficiency on the treatment effects of Act & Adapt, a video-guided, group CBT program for depression.

This study found significant changes in depressive symptoms between pre- and post- treatment scores, suggesting that the CBT intervention was associated with improvement. This indicates the program may be a promising intervention for a typically underserved population of youth with depression. This is important given the limited data on treatment effects for ethnic minority youth with depression (Huey & Polo, 2008), particularly in school-based settings (Farahmand, Grant, Polo, Duffy, & DuBois, 2011). Furthermore, results from this study indicate improvements in CLIs from pre- to post-treatment, with youth demonstrating improved social functioning and decreased negative cognitions at the end of treatment. This program validates core aspects targeted by CBT (i.e., CLIs and depressive symptoms) in a population largely overlooked in the literature.

Overall, student engagement in the program was strong, as evidenced by high rates of attendance, homework completion, and consumer satisfaction. This is important considering the high rates of underutilization and dropout from mental health services particularly amongst low-income ethnic minority youth with depression (Merikangas et al., 2011; Warnick et al., 2012). Previous research has found that, in general, one significant barrier for youth with depression to utilizing services is unfamiliarity with services (McCann & Lubman, 2012). This program focused on engaging youth prior to the beginning of the program by being involved in the school setting before approaching youth about the program. Additionally, prior to making a decision about whether to enroll in the program, youth were given an overview of the program, the skills they would be learning, show the practice book, and the first video segment to create transparency about

the program's structure. By demystifying psychotherapy and having a set structure, youth may have been more likely to initially engage in therapy.

Results from this study found that contrary to hypotheses, neither measure of therapeutic engagement (i.e., homework completion and consumer satisfaction) was associated with improvement in depressive symptoms. Previous research has found a relationship between engagement and treatment outcomes, yet overall, such findings have been inconsistent (Lebow, 1982; Pekarik & Guidry, 1999; Shirk et al., 2013; Simons et al., 2012). One possible explanation for this study's finding related to consumer satisfaction, is that a ceiling effect for consumer satisfaction may have hindered the ability to uncover a relationship to changes in depressive symptoms. Additionally, although consumer satisfaction was measured on a weekly basis throughout the intervention, it was comprised of only one item evaluating the client's global satisfaction of each session. Other studies have measured consumer satisfaction via more established scales (Tetley et al., 2011).

Previous research has found that levels of homework completion can predict treatment effects, even when evaluating the number of assignments completed (Kazantzis et al., 2010; LeBeau et al., 2015). However, that was not the case in this study. Moving beyond the total number of assignments completed might yield a more consistent pattern of results. For example, homework could take into account homework quality, such as whether the clients were accurately doing their homework or the amount of effort/time put into homework (Holdsworth et al., 2014). Another concern related to homework is how closely it is associated with attendance - if a client does not attend a session, he/she does not

get credit for the previous week's homework nor receive the assignment for the following week. One possible remedy for this concern is to embed remote ways for clients to turn-in homework assignments (e.g., phone or web-based assignments). In terms of future implications, this study demonstrates the need for more research to develop better indicators of engagement and to determine what aspects of engagement are most related to treatment outcomes. Additionally, it would be beneficial to compare other types of engagement that may impact treatment outcomes such as therapeutic alliance, in-session participation, and client and therapist ratings of youth therapeutic engagement.

When the role of CLIs were examined, not only were there improvements over time in CLIs and depressive symptoms, but consistent with previous research (Shahar et al., 2004; Webb et al., 2013), changes in CLIs were associated with changes in depression. Specifically, there was an association between improved ratings of social functioning and decreased depressive symptoms. Additionally, there was an association between decreased negative cognitions and decreased depressive symptoms. Such findings provide support for the underlying theory that CBT targets and changes the underlying processes of overly negative cognitions and poor social functioning to help reduce depressive symptoms (Beck et al., 1979; Sue & Sue, 2008). Relatedly, the CLIs selected for this study are central and have been posited as being instrumental as mechanisms involved in improving mood (Lemmens et al., 2016; Shahar, Blatt, Zuroff, Krupnick, & Sotsky, 2004). In fact, there has been a call to use them as potential mediators to help further validate the

mechanisms of change associated with psychotherapy for youth with depression (Weersing, Rozenman, & Gonzalez, 2009).

However, contrary to hypotheses, neither CLI was associated with either of the engagement variables. Furthermore, neither CLI mediated the relationship between engagement and depressive symptoms. As discussed earlier, these findings could be related to the engagement variables examined. Moreover, findings could be related to the specific CLIs examined. As many CBT skills are taught, further research would benefit from exploring other CBT skills are most important, to what extent they are being learned/used, and to what extent they are impacting core deficits. For this study, only two CLIs were evaluated. As many CBT programs incorporate a number of core skills for youth to learn (Chu & Harrison, 2007), future research should explore the relationship between engagement and other potential CBT skills, such as problem-solving skills, relaxation skills, behavioral activation skills, or secondary control skills (e.g., distraction).

A limitation to the use of CLIs is that they may not be accurately capturing whether youth actually learned the skills being taught. As the measures of CLI are examining indicators of learning (as opposed to skill acquisition), it may be difficult to tease apart to what degree youth are actually learning the targeted skills. For instance, changes in social functioning may be more a result of participating in group therapy and making more social connections rather than having specifically learned social skills. It is possible that another mechanism besides learning skills is contributing to a decrease in depressive symptoms

including therapeutic alliance or self-esteem (Lemmens et al., 2017). More fine-tuned measures of skill acquisition would help to assess whether the program is actually helping youth learn targeted skills or whether another mechanism is contributing to change in treatment outcomes. Furthermore, it would be beneficial for future research to develop measures that can better capture whether clients are acquiring the skills being taught.

While more attention has been paid to mediation analyses in the field (Lemmens et al., 2017), less has been explored regarding the important contribution that moderators can make in understanding treatment effects and subgroups for whom specific pathways to change can be validated. This is the first study that this author is aware of that examines English oral language proficiency as a moderator of treatment effects for depression. This is particularly relevant for a growing population of ethnic minority youth, particularly youth from immigrant family backgrounds, where English may not be the predominate language spoken at home (U.S. Census Bureau, 2015). This is also important for youth with broader language concerns, especially since having a language impairment is a risk factor for having a psychiatric disorder (Toppelberg & Shapiro, 2000).

This study helped explain some of the inconsistent findings, in terms of the impact of engagement on treatment outcomes for youth with depression via the role of oral language proficiency. For this sample, English oral language proficiency moderated the relationship between homework completion and change in depressive symptoms. Specifically, increased homework completion was related to decreased depressive symptoms, but only for those with higher English oral

language proficiency. There was not a significant relationship between homework completion and change in depressive symptoms for those with medium and low oral language proficiency. Such findings are consistent with concerns that those with limited functional literacy rates may have more difficulty benefitting from traditional CBT without adaptations (Pastrana, Bridges, Villalobos, Dueweke, & Rodriguez, 2017). It also supports the suggestion to take depressed youths' developmental ability into consideration during assessment and treatment planning (Garber et al., 2016). This is especially relevant for psychotherapy conducted with youth, since youth psychotherapy protocols are often extensions of adult treatment protocols (Stallard, 2002).

In terms of consumer satisfaction, this study found a significant relationship between increased consumer satisfaction and decreased depressive symptoms, but only among youth with lower English oral language proficiency. The relationship between consumer satisfaction and change in depressive symptoms was not significant for those with medium and high oral language proficiency. There are several reasons why this relationship may exist only for youth with lower oral language abilities. It is possible that another mechanism other than skill acquisition is contributing to the relationship between engagement and change in depressive symptoms. As noted previously, this may also be related to the way constructs were measured.

This finding also relates to the idea that youth with lower language proficiency tend to have higher rates of psychiatric problems (Toppelberg et al., 2002) and may have different learning styles (Immordino-Yang & Damasio, 2007). Such

youth may benefit even more from groups that are more active and or integrate a greater variety of teaching techniques during session to help decrease their depressive symptoms. This relates to the notion of how important emotions are both in learning and motivation/engagement in learning (Immordino-Yang & Damasio, 2007) and stresses the importance of emotionally engaging and connecting youth to material to facilitate learning (Reid et al., 2017).

Overall, moderation results suggest that youth with varying English oral language proficiency levels may still benefit from engaging in CBT but that a variety of factors may underlie the relationship between different types of engagement and treatment outcomes for youth. For example, for some youth, having a supportive environment may be more crucial, while for others, it may be the act of learning certain skills. Reid and colleagues (2017) discuss the importance of recognizing that youth have different learning styles and preferences and this is applicable both to learning in the classroom and learning CBT. They suggest that, in order to facilitate learning CBT skills for a wide variety of youth's abilities, therapists should provide multiple means of engagement, provide multiple means of representing material and providing multiple means of acting out and expressing knowledge of skills (Reid et al., 2017). They also stress the importance to engage a variety of learners it is helpful to role-play, have youth interact together in groups/pairs, and providing youth with multiple ways of exposing and displaying knowledge (Reid et al., 2017). This may help explain why youth with lower English proficiency benefitted more from consumer satisfaction since the groups were highly active and had multiple ways of engaging with

material (e.g., videos and group activities). One important clinical implication is for clinicians to remember the importance of psychotherapists working to establish high client involvement and a strong therapeutic alliance to facilitate engaging clients during psychotherapy (Holdsworth, 2014; Jungbluth & Shirk, 2009). Researchers also suggest to improve learning among youth with limited language proficiency, therapists should check in with clients to ensure they are understanding material (Reid et al., 2017), which therapists are more easily able to do during groups while discussing and practicing skills.

This study highlights how clinicians may have to strategize how to best utilize their time both during and between sessions to best engage youth with a variety of strengths and weaknesses. Act & Adapt is unique from other treatment protocols in that it utilizes a professionally made video that captures the attention of clients, has actors model the CBT skills, and integrates weekly group activities meant to foster movement and group work. Such activities may have contributed to the high consumer satisfaction ratings in this study. This study also reveals the tension that exists for clinicians to adhere to evidence-based protocols but also maintain flexibility to adapt to particular clients' needs (Kendall, Chu, Gifford, Hayes, & Nauta, 1999).

The Act & Adapt protocol allows for some degree of flexibility, in that therapists can choose certain activities they think would best suit the group's needs. However, like most therapy protocols, it is not tailored to be delivered according to a flexible or individualized pace, as this is particularly challenging to do in a group setting. Future studies may want to investigate how to incorporate

innovative and personalized sequences, such as: 1) getting more parental involvement in helping youth learn and practice skills; or 2) teaching all students the basic skills, then assessing knowledge/application of skills, and as needed, tailoring the treatment to clients' specific needs; or 3) requiring mastery of skills prior to progressing to the next step of the program to guarantee that skills are acquired and integrated into clients' lives.

The findings raise interesting questions with respect to what developmental, cognitive, and language domains may impact treatment effects for youth with depression. For instance, it may be useful to distinguish whether results of moderation analyses can be accounted for by general cognitive abilities or whether results are confined more specifically to language. Furthermore, if these results are specific to language, it may be worth exploring the impact of other aspects of language such as receptive and pragmatic language abilities. It may be beneficial for clinicians and researchers to consider assessing cognitive abilities and language proficiency prior to treatment.

It is important to note this study was conducted with low-income youth, many with monolingual Spanish-speaking parents and attending public schools in one of largest U.S. school districts. It would be helpful to consider whether any deficits in English oral language abilities may be partially due environmental factors such as limited exposure to English while in a primarily non-English speaking household, or due to structural limitations of underfunded school systems that may cause barriers to learning. Future studies should assess developmental, language, and cognitive abilities across a variety of settings where school learning

climate and quality of instruction can be fully considered. Such research should focus on developing and piloting psychotherapy protocols for youth from a variety of backgrounds (e.g., ages, ethnicities, socio-economic backgrounds, and varying ability levels) to help evaluate and increase therapeutic engagement for a wide range of youth with depression.

Overall, this study provides a critical starting point for understanding how oral language proficiency may impact the relationship between engagement in psychotherapy and treatment outcomes for youth with depression, particularly within the context of a group CBT program conducted with predominately low-income ethnic minority youth. Results are consistent with key aspects of the CBT model, demonstrating improvements in CLIs were related to improvements in depressive symptoms. It also provides a preliminary understanding into how youth with varying language abilities may benefit from CBT to treat their depressive symptoms and how therapists ought to engage and teach youth using a variety of strategies. There still remain many unanswered questions in order to better understand mediators and moderators of therapeutic engagement and treatment outcomes. Future research in this area will help to better serve youth with a wide range of developmental abilities and youth from diverse ethnic/cultural/immigrant/socioeconomic backgrounds.

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