Chicago Urban Resiliency Building (CURB): An Internet-based Depression-Prevention Intervention for Urban African-American and Latino Adolescents

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Abstract

Early preventive interventions for depressive disorders in racial/ethnic minorities may help to reduce lifetime depression outcome disparities by improving developmental trajectories and social outcomes. We describe the development process, intervention and evaluation plan for a culturally adapted, low-cost, primary care/Internet-based depression-prevention intervention (CURB, Chicago Urban Resiliency Building). CURB is culturally adapted for socio-economically disadvantaged African-American and Latino adolescents according to the PEN-3 model of health promotion programs (Airhihenbuwa, 1995). Based on the idea that health behavior is rooted in culture, the PEN-3 model contains three interdependent dimensions that influence health beliefs and behaviors. Within each dimension are factors (using the acronym PEN) that must be considered about the target culture. Application of the PEN-3 model occurred in 3 phases. In each phase, a dimension of the model was explored and subsequent changes were made to the intervention so as to be more culturally suitable. In the CURB clinical trial, adolescents ages 13-17 will be recruited from wait-lists for mental health services at community health care provider organizations and screened for risk of future depressive disorder in the primary care sites. Adolescents screening positive for persistent depressed mood will be randomly assigned to either the CURB intervention group or the wait-list control group. The study aims are to determine if participants in the CURB intervention group will have lower levels of depressive symptoms and/or a lower cumulative incidence of depressive episodes.

Keywords: Adolescent depression, prevention and intervention, primary care, Internet, cultural adaptation

Introduction

The lifetime prevalence of major depressive disorder in adolescents is estimated to be 20% by age 17 (Kaufman et al., 1996) and has considerable long-term morbidity and mortality (Brent et al., 1993; Brent et al., 1988; Georgiades, Lewinsohn, Monroe, & Seeley, 2006; Harrington, Fudge, Rutter, Pickles, & Hill, 1990; Lewinsohn et al., 1994; Weissman et al., 1999). However, as compared to Caucasian adolescents, more African American adolescents experience a depressive episode (Van Voorhees, Paunesku, Fogel, & Bell, 2009). Also, Latino and African American adolescents report significantly higher levels of depressive symptoms than non-Latino white adolescents, even when controlling for adolescents' age, gender, family structure and household income (Wight, Aneshensel, Botticello, & Sepulveda, 2005).

African American and Latino adolescents of low socio-economic status appear to be even more vulnerable for a depressive episode. In addition to the specific mental health concern of depression, both minorities and low-income populations underutilize mental health services (Cardemil, Reivich, & Seligman, 2002). Chronic life stressors, such as exposure to neighborhood violence, occur more often among low-income minority urban children than among middle-class white urban children (Stein, Jaycox, Kataoka, Rhodes, & Vestal, 2003) and chronic life stressors are associated with higher rates of depressive symptoms (Barreto & McManus, 1997). Minority adolescents and their parents may perceive stigma related to treatment for mental health problems. For example, among African Americans, this perceived stigma may be influenced by a historical mistrust of the medical profession, provider bias in diagnosis and treatment of mental illness, and the cultural perception of psychiatric illness as a social construct rather than a medical disorder with biologic underpinnings (Breland-Noble, Bell, & Nicolas, 2006). Additionally, publicly funded mental health services for adolescents do not provide a full range of community-based models of care, which is more effective than hospitalization and emergency room treatment. (New Freedom Commission on Mental Health, 2003) Without choice and the availability of acceptable treatment options, adolescents with mental illness are less likely to engage in treatment or to participate in appropriate and timely interventions. These unique vulnerabilities point to the need for early preventive interventions in the development of depressive disorder to reduce lifetime disparities in depressive outcomes for ethnic minority adolescents (Van Voorhees, Walters, Prochaska, & Quinn, 2007).

Racial/Ethnic Differences in Risk Factors for Development of Depressive Episodes

In addition to racial/ethnic disparities in the development of depressive disorders, there appear to be differences in the patterns of vulnerability for depression between Caucasian and African American adolescents, even among adolescents of similar socio-economic status. In our earlier published research, we demonstrated differences between Caucasian and African American adolescents in vulnerability factors predicting depressive episodes (Van Voorhees, Paunesku, et al., 2009). Univariate analyses showed that some risk factors were shared by both groups of adolescents (such as low family and peer connectedness and lack of parental completion of high school). One marker of low-income, family receipt of public assistance, significantly predicted a depressive episode in Caucasian adolescents, but not in African-American adolescents. In a multivariate analysis in which variables significant in the univariate model were included, lack of parental completion of high school was a predictor of a depressive episode in African-American but not Caucasian adolescents. This may indicate that even among adolescents with certain markers of low socio-economic status, cultural factors may influence an adolescent's self-perception of that marker in such a way that it may or may not be associated with depression. These findings suggest that a culturally adapted approach to depression prevention that also addresses unique vulnerabilities caused by socio-economic disadvantage may be more effective for some ethnic minority adolescents from low-income backgrounds.

Description of the Existing Original Intervention

To address the need for a preventive intervention in the primary care setting which would be widely acceptable to diverse adolescents, we developed CATCH-IT (Competent Adulthood Transition with Cognitive-behavioral Humanistic and Interpersonal Training). CATCH-IT is a primary care/Internet-based behavioral "vaccine" intended for adolescents at elevated risk for depression. The intervention consists of 14 modules based on Behavioral Activation, Cognitive-Behavioral Therapy, Interpersonal Psychotherapy and a community resiliency concept model (Landback et al., 2009; Van Voorhees, Fogel, et al., 2009). During phase 2 clinical trials of CATCH-IT, adolescents were screened during primary care visits for risk of depressive disorder. Those screening at risk for depression were invited to participate in the study. Participants received a physician interview encouraging them to use the CATCH-IT program, followed by the Internet intervention (Van Voorhees et al., 2008). Participants in phase 2 clinical trials of CATCH-IT had declines in depressive symptom scores 6 weeks after the intervention. These declines were sustained 3 months and 6 months following the intervention. CATCH-IT also demonstrated

potential efficacy in reducing future incidence of depressive episodes (Hoek et al., 2011; Van Voorhees, Fogel, et al., 2009).

Cultural Adaptation and Improved Outcomes

Several studies demonstrate the effectiveness of culturally adapted mental health interventions. For example, Cardemil et al. (2002) developed a cultural adaptation of the Penn Resiliency Program for low-income minority middle school children. Following the program, Latino children reported lower rates of depressive symptoms, automatic negative thoughts and hopelessness, and higher self-esteem compared to their peer controls. These results were maintained 6 months following the intervention, and benefits continued to be demonstrated 2 years following the intervention. However, similar findings were not found among African American participants (Cardemil, Reivich, Beevers, Seligman, & James, 2007). An adaptation of the Beardslee Preventive Intervention Program for depression was used in predominantly low-income Latino families (D'Angelo et al., 2009). Families could receive the intervention in either English or Spanish, and contextual experiences of Latino families and a strengths-based family approach were included in the intervention. Parents reported higher levels of satisfaction than in the pilot study of the intervention, with similar results as in the original intervention. Jacob, Keeley, Ritschel, and Craighead (2011) also report positive findings from a case series in which behavioral activation was used for the treatment of depression in low-income African-American adolescents, with decreased severity of both clinician-rated depressive symptoms and impairment for all participants at the end of treatment.

Previous studies also use motivational interviewing along with cultural adaptation for depression treatment interventions. For example, Breland-Noble et al. (2006) reports the multi-phase development of a motivational interviewing intervention to improve treatment engagement for African-American adolescents with depression and their families. Prior to the adolescent's treatment, families participated in one phone clinician session and two face-to-face clinician sessions (one involving the adolescent only, the second involving both adolescent and parent), with the aim of increasing readiness for engagement with psychiatric treatment. A pilot intervention demonstrated higher rates of initiation of treatment for depression as compared to delayed group controls (Breland-Noble & AAKOMA Project Adult Advisory, 2012).

Increasing Effectiveness by Increasing Socio-Cultural Relevance

Participants' beliefs about the relevance of our original CATCH-IT intervention predicted their adherence to the intervention. For example, both the belief that an intervention like CATCH-IT was important and the attitude

that benefits of the intervention would outweigh any difficulties significantly predicted total time spent online in the intervention (Marko, Fogel, Mykerezi, & Van Voorhees, 2010). Also, the way in which adolescents interpreted the program was highly contextual. A review of adolescents' comments typed into the CATCH-IT website during the intervention revealed that many participants applied lessons of the intervention to their own life situations. For example, in their online comments, adolescents suggested behavioral changes they could make in the areas of health, school, and communication with family and friends (Iloabachie et al., 2011). Given these findings, it is likely that an intervention that is more relevant to participants will be more meaningful to them. By making an intervention more culturally relevant, we believe that it can also become easier to personalize, thus increasing participant motivation to adhere to the intervention and resulting in behavioral change.

Purpose of Intervention

We describe in this publication the development of the CURB intervention and the plans for evaluation and dissemination. We are not aware of any culturally adapted interventions to prevent depression for socio-economically disadvantaged African American and Latino adolescents in primary care settings. To address this need, we developed four aims or steps: (1) CURB development, (2) final intervention design, (3) evaluation and (4) dissemination. Our first aim (CURB development, including cultural adaptation) was to adapt a “standard” Internet-based depression prevention intervention to meet the needs of low-income urban African American and Latino adolescents. The second aim (final intervention design) was to construct the intervention that would be implemented within a primary care setting. This includes the culturally adapted Internet component and parent component, along with a motivational component to be completed by the primary care provider. The third aim (evaluation) is to describe the planned evaluation study that would determine if CURB is superior to wait-list control for urban African American and Latino adolescents with respect to depression-related outcomes (i.e., depressed mood, depressive disorders and presence of vulnerability and protective factors). Our fourth aim (dissemination) is to determine the ways in which the intervention might be disseminated effectively once an evaluation study is completed.

Methods

Overview

We developed a culturally adapted version of CATCH-IT called CURB (Chicago Urban Resiliency Building). Like CATCH-IT, CURB targets the multiple etiological elements of depression that act either in concert

or in combination, including negative cognitions (Lewinsohn, Gotlib, & Seeley, 1995, 1997), poorer social skills (Lewinsohn et al., 1994; Liu, 2002), stressful events, subsyndromal depressive symptoms (Lewinsohn et al., 1994; Van Voorhees et al., 2008), and the absence of protective factors (e.g., high self-esteem, coping skills). Additionally, CURB engages both parents and adolescents with distinct behavior change programs to address person- and family-level barriers (Compas, Hinden, & Gerhardt, 1995; Garber, 2006; Hankin, 2006; Lewinsohn et al., 1994; Reinecke & Simmons, 2005). Below, we describe four key elements of the cultural adaptation and implementation of the CURB intervention: (1) CURB development (including cultural adaptation framework), (2) final intervention design, (3) evaluation, and (4) dissemination.

CURB Development

Parent and Adolescent Advisors. Two adolescent advisory groups were convened to aid with cultural adaptation of the intervention. We gathered 12 adolescents (six African-American and six Latino), both male and female, ages 15-18) with the help of a local community service center and a local community member. For their participation, adolescents were paid \$20 each, served two meals, and provided reimbursement for transportation costs, for spending six hours evaluating the intervention in the computer lab of a local community service center in November 2010. Adolescents all provided assent and also permission was received from their parents for participation. Adolescents were first given a demographic questionnaire. They were then given one hour to navigate through the public website of the original CATCH-IT intervention. They were advised to pay attention to details such as language, navigation on the site, and pictures/media. They were told that their opinion was going to help build a better site to help teens in need of improved mental health and wellbeing. After adolescents completed navigation of the site, they were given a second questionnaire to capture their immediate self-reported response to the website. Then adolescents were separated by ethnicity and escorted into two separate rooms where advisory sessions took place (the African-American group was facilitated by a local African-American community member, and the Latino advisory group was facilitated by a social worker with extensive experience working with Latino adolescents). The five main areas discussed with adolescents were: (1) ease of navigation and use, (2) clarity and ease of understanding (3) level of engagement (i.e., elements participants found interesting or boring), (4) motivation (i.e., elements participants felt motivating or non-motivating), and (5) pictures/media (i.e., what pictures and other media elements participants found boring or exciting). During the discussions, screenshots of specific pages of the intervention, such as the home page and rewards page, were also shown and participants were asked for

general impressions and suggestions for improvement. Several months later, the adolescent advisor group then reconvened to view the final design.

Four parents (two African-American and two Latino), all local community members, were recruited to be parent advisors for the CURB intervention. They were given copies of the parent program and discussed individually with one of the study's principal investigators their general impressions and suggestions for improvement. An experienced psychotherapist with extensive experience working with African-American and Latino communities also provided feedback on the developing parent program.

Cultural Adaptation Framework. The CATCH-IT intervention was culturally adapted according to the PEN-3 model of health promotion programs, as described by Airhihenbuwa (1995), between August 2010 and January 2012. The PEN-3 model is based on the idea that health behavior is rooted in culture, and that consideration of cultural factors can foster the development of successful health programs. The model contains three interdependent dimensions that influence health beliefs and behaviors. Within each dimension are factors (using the acronym PEN) that must be considered about the target culture: (1) Persons, Extended family, and Neighborhoods, (2) Perceptions, Enablers, and Nurturers, and (3) Positive, Existential, and Negative behaviors. The PEN-3 model has been widely applied to develop culturally adapted versions of health programs for target audiences (see Figure 1) (Erwin, Johnson, Feliciano-Libid, Zamora, & Jandorf, 2005; James, 2004; Matthews, Sanchez-Johnsen, & King, 2009). Application of the PEN-3 model to CATCH-IT occurred in 3 phases. In each phase, a dimension of the model was explored and subsequent changes were made to the intervention so as to be more culturally suitable.

Phase 1: *Persons, Extended family and Neighborhoods*. In phase 1, we identified whether the target of the intervention would be the person, extended family or neighborhood. In our study, we focus on individuals living in urban communities in Chicago, IL and Cicero, IL with high concentrations of low-income African American and Latino adolescents. We first had to determine for preventive interventions whether the vulnerability and protective factors for ethnic minority adolescents differed meaningfully from those of American adolescents as a whole or of Caucasian adolescents in particular.

To determine the unique vulnerability factors for ethnic minority adolescents as compared to Caucasian adolescents, we conducted a literature review with regard to Latino adolescents and incorporated our own work comparing vulnerability and protective factor for depressive episodes between African American and Caucasian adolescents (Van Voorhees, Paunesku, et al., 2009). We identified salient vulnerability factors including stigma,

socio-economic hardship, immigration stress, sexual activity, substance abuse, emotional trauma and physical trauma. Similarly, we identified strengths such as family closeness and connection to community that may be particularly protective.

Phase 2: *Perceptions, Enablers, and Nurturers*. In Phase 2, we identified beliefs (perceptions) and systemic factors (enablers) that may hinder or promote depression prevention in each ethnic minority group, and the extent to which cultural beliefs are influenced by an individual's family and community (nurturers). After identifying the relevant perceptions, enabling and nurturing cultural factors, we adapted the intervention to maximize acceptance and potential efficacy. To make the Internet intervention and program materials more culturally appropriate, we utilized the approach described by Kreuter, Lukwago, Bucholtz, Clark, and Sanders-Thompson (2003) to achieve cultural appropriateness in health programs. This approach includes the use of: (A) peripheral strategies, (B) evidential strategies, (C) linguistic strategies, and (D) constituent-involving strategies. Each is further explained below.

- A. *Peripheral strategies*: The program was changed to increase visual appeal to the target group. We solicited input from adolescent and parent advisors to make the appearance of the intervention more engaging to our targeted audience. Based on their comments, pictures of urban African American and Latino adolescents were included on the website and thematic elements were used that appealed to African American and Latino adolescent advisors. Adolescent advisors reported that the initial colors and design appeared too “boring” for them, so we selected a hip-hop theme and earth tone colors, which adolescents found quite appealing (see Figure 2).
- B. *Evidential strategies*: The program was changed to make the health issue of depression prevention more personally relevant for African-American and Latino adolescents. We re-wrote text and stories used within the intervention to reflect the feedback from the parent and teen advisors. In particular, themes for stories were developed to reflect the unique vulnerability and protective factors experienced by ethnic minority adolescents. Stories also featured African American or Latino cultural and family contexts including names, idioms and other cultural elements.
- C. *Linguistic strategies*: The dominant language of the target group was used to make the program more accessible. With regard to linguistic strategies, vernacular and idioms relevant to African American and Latino adolescents of urban Chicago were used by African American narrators. The parent program was

translated into Spanish. We also elected, whenever possible, to shorten the text and avoid the appearance of a “school-like” experience. However, we also added text that provided a much fuller description of the range of affect adolescents can experience based on comments from the advisor groups.

- D. Constituent-involving strategies:* Members of the target group were involved in a substantive way in the design of the intervention. We utilized the experience of constituents from the target audience by convening advisory groups of Latino and African American adolescents and parents, and including videos featuring mentors, and parents of both African American and Latino background.

Phase 3: Positive, Existential and Negative behaviors. In Phase 3, we identified cultural beliefs, practices, or behaviors that have a good impact, no impact, or a harmful impact on depressed mood (positive behaviors, existential behaviors, or negative behaviors, respectively). In the two advisory groups described above, facilitators sought out commentary that addressed knowledge deficits and benefits of the current CATCH-IT intervention, myths about the effectiveness of traditional depression treatment, and cultural norms regarding depression treatment. Positive messages about the benefits of mental health, education on depression and its treatment, learning about coping skills, building resilience and changing thoughts to change behavior were also discussed. We used this approach to develop video elements that more fully connected the users, parent, adolescent, physician, and office staff to the program.

- A. Adolescent:* Videos in the adolescent Internet intervention featured mentors, both African American and Latino (alternating modules), describing each module, explaining how it might help, dispelling myths and generally extending the intervention into an African American and Latino cultural framework. We did not have a “matched” mentor on each module because the goal of the intervention was to provide, wherever possible, a common approach to both groups.

- B. Parent:* With regard to the parent intervention, we created a video that demonstrated a process to improve parent-adolescent communication style to enhance connectedness to family (i.e., protective factor). The video featured an African American family addressing adolescent depressed mood related to the death of a friend due to gun violence (i.e., emotional trauma vulnerability factor).

- C. Physician, medical staff and office setting:* To engage physicians and medical practices with the project, we created an overview video that featured ethnic minority physicians and students describing the project and the potential benefits. We created a colorful brochure and poster to be displayed in the primary care practices to

engage adolescents and families with the program. The brochure celebrates the concept of building resiliency rather than focusing on “illness,” that is, the adolescent and parent have the chance to build on their strengths to prepare the adolescent for the future. Similarly, the physician motivational interview training program was revised to feature an African American physician as well as African American and Latino patients.

Final Intervention Design

Overview: The intervention has the same overall structure as the CATCH-IT (2nd version) intervention. Physicians perform initial (baseline) and follow-up (3 months) motivational interviews for each participant to engage and follow-up after the Internet-based program (Figure 3). Physicians and clinic office staff are trained using a lecture/video example format (1 hour). The adolescents also receive three motivational phone calls from social worker case managers (three hours of training, licensed clinical social worker). The intervention includes 14 modules based on Behavioral Activation (BAC), Cognitive Behavioral Therapy (CBT) (Clarke, 1994; Jacobson, Martell, & Dimidjian, 2001), Interpersonal Psychotherapy (IPT) (Mufson, Dorta, Moreau, & Weissman, 2004; Stuart & Robertson, 2003), and a community resiliency concept model (Bell, 2001). These components were constructed from manuals with demonstrated efficacy in face-to-face delivery models using a systematic method based on principles of effective translation of preventive interventions to community settings and instructional design theory (Gagne, Briggs, & Wager, 1992; Nation et al., 2003; Wandersman & Florin, 2003). Similarly, the parent program consists of three Internet- or workbook-based modules.

Motivational Component: The CURB intervention has a motivational component, which consists of motivational interviewing by the primary care provider at baseline and 3 months for those receiving the CURB intervention, and at 3 months and 6 months for those in the wait-list control group (see Figure 3). In the motivational interview (10-15 minutes duration), the physician seeks to help the adolescent weigh the balance of positives and negatives of undertaking the depression prevention intervention. Coaching phone calls are made at 1, 2, 3, and 7 weeks after exposure to the intervention. Coaching calls will be conducted by research study staff, use the same motivational interview approach, be 5 minutes or less in duration, and be solely designed to encourage completion of the intervention and behavior change (i.e., not to be psychotherapy). If an adolescent reveals that depression is worsening or endorses suicidal thoughts during the coaching call, a clinician assessment will be made immediately by phone using a suicide protocol. If the adolescent is judged to have significant risk of self-harm or injury, an immediate dispatch of appropriate professionals will occur to perform a face-to-face assessment.

Adolescent Internet Component: The Internet component consists of 14 Internet-based modules based on Behavioral Activation (BAC) (Jacobson et al., 2001), Cognitive Behavioral Therapy (CBT) (Clarke, 1995), Interpersonal Psychotherapy (IPT) (Mufson et al., 2004; Stuart & Robertson, 2003), and resiliency building (Bell, 2001) (see Table 1). The first module is an Internet introduction to the program. To emphasize the core goals of behavioral activation, the Internet component includes three modules that focus on engaging the adolescent in meaningful activities, stopping avoidant behaviors that reinforce depressed mood, and incorporating a healthy rhythm of activities in one's life. These include the concepts of teaching resiliency to adolescents as described by Bell (2001) as well as the BAC approach described above (Jacobson et al., 2001). The CBT modules include four modules that teach participants to identify and counter pessimistic and irrational thoughts. Also, participants learn how to conduct basic problem-solving skills and how to anticipate and plan responses to difficult situations. The IPT skills modules include four modules that teach participants how to cope with transitions in roles or location and how to identify and resolve relationship problems. In the final two modules, participants learn how to recognize the symptoms of depression, current treatment options, and how to overcome stigma.

The basic design and structure of each module from CATCH-IT was not changed in the development of the CURB program. The Internet website was constructed with three goals: (a) careful attention to instructional design to ensure delivery of the core behavior change curriculum (Gagne et al., 1992), (b) minimize participant burden, and (c) maximize motivation for change. These goals are important since well-designed interventions have the goals to: (1) gain the attention of the learner, (2) inform the learner of objectives, (3) stimulate the recall of essential knowledge, (4) provide required stimulus material, (5) promote learning guidance, (6) measure performance, (7) provide feedback on performance correctness, (8) assess performance, and (9) enhance transfer and retention (Gagne et al., 1992). Each module includes the following sections: (1) what you will learn (goals and introductory video); (2) review/warm-up; (3) lesson (explanation of coping strategies); (4) stories (five stories of adolescents' lives that develop across time and demonstrate the coping strategies); (5) skill builders (on-line practice exercises); (6) feedback (opportunities to rate experience); (7) wrap-up (summary); (8) doing goals (things you can do to practice coping skills in the coming week); and (8) reward (brief Internet-based reward-like coupons).

Parent Component: The parent component of the intervention is based on an adaptation of Beardslee and Gladstone's clinician-facilitated and lecture intervention approaches from the Preventive Intervention Project. This intervention builds resiliency in adolescents and families (Beardslee & Gladstone, 2001; Beardslee, Gladstone,

Wright, & Cooper, 2003). In terms of resiliency, this intervention helps parents develop the awareness and skills needed to support their children in the development of supportive peer relationships and age-related developmental tasks (e.g., parental participation in and leadership of adolescent organizations, adolescent sports and other adolescent activities). The intervention also seeks to reduce known risk factors for adolescent depression (i.e., parental and family discord and hostile or overly critical parenting styles). To accomplish this, the intervention helps parents to remove misunderstandings about depression that increase guilt or blaming and teaches them communication skills. Parents are also taught to recognize the symptoms of depression in themselves and their children. The parent program includes three modules and five brief videos demonstrating the resiliency building strategies that parents can practice in dialogue with their adolescent. The parent program has been translated into Spanish.

Evaluation

Overview: The evaluation will consist of a randomized clinical trial comparing CURB (GROUP A) to a wait-list condition (3 month wait, GROUP B). Group B becomes GROUP C after receiving CURB and will be followed for 3 more months (see Figure 4). Similarly, Group C will be compared to wait-list control experience (Group B, same individuals, different time points). Performance sites include four primary care clinics of a federally qualified health center and an affiliated school-based clinic, a public health clinic affiliated with a community mental health center, and a public hospital clinic. Adolescents will be recruited from all performance sites by screening for risk of future depressive disorder in primary care/school based clinic sites. Adolescents with depressed mood (>2 weeks duration) will be eligible unless they already exceed the diagnostic threshold for major depressive disorder. The CURB intervention will include two motivational interviews (conducted by primary care providers at the clinics) and the CURB Internet intervention.

Dissemination

We developed training materials for CATCH-IT (including videos, primary care scripts, flyers, posters, screening instruments etc.) for practices which will be modified for CURB during the first six months of the budget period. We developed a tool box method for “starting up” the intervention similar to the successful Enhancing Developmentally Oriented Primary Care (EDOPC) method (used to change pediatric practice in Illinois) (Allen, Berry, Brewster, Chalasani, & Mack, 2010). We see ourselves leveraging the ease of distribution of the intervention itself with video conferencing to train providers over lunch hours or short increments of time. Given that our

performance sites are community health centers, one limitation of our study is that we will not likely be able to recruit middle and upper middle class African American and Latino adolescents for comparison of the intervention's effectiveness in racial/ethnic minority children across socio-economic strata. One future direction of our study may be implementation of CURB in academic and private practice settings where middle- and upper- class adolescents may be more easily accessible. However, we believe that the CURB intervention would represent value to both health systems and patients. CURB is low cost, easily accessible, and easily disseminated using the online training materials and interventions describe above. CURB targets known risk factors as well as barriers to resolution of disparities (person, practice, community, and system) to reduce likelihood of depressive illness. If proven beneficial, CURB would meaningfully impact racial/ethnic disparities in depressive outcomes via early preventive intervention in adolescence.

Conclusions

CURB is a culturally adapted, low-cost, primary care/Internet-based depression prevention intervention for African American and Latino adolescents. CURB targets common barriers in accessing mental health services (cost, difficulty in distribution and low acceptability of some face-to-face interventions). CURB also utilizes Internet technologies to address the limited supply of mental health resources. Key innovations of CURB include the following: (1) it targets both adolescent and parent vulnerability and protective factors in separate interventions, using an ecological model; (2) it is personalized to reflect race/ethnicity and culture; and (3) it uses media-based learning strategies including stories and photographs within the Internet modules to convey learning. A unique strength of CURB is its ability to be easily implemented in a primary care setting, enabling a clinician to intervene quickly for adolescents at risk for depressive disorder.

Figure 1: CURB Cultural Adaptation Method

Figure 2: CURB Internet Design

Figure 3: CURB Intervention

Note: BAC = Behavioral Activation, CBT = Cognitive Behavioral Psychotherapy, IPT = Interpersonal Psychotherapy

Figure 4: CURB Evaluation Study

Table 1

Intervention Phases and Components

Component	Content and Exercises (theoretical model)	Behavioral Target
Adolescent Program		
Motivational Component	PCP MI at baseline and 3 months (CURB arm) or 3 months and 6 months (wait-list control) Phone calls at 1, 2, 3, and 7 weeks after intervention	Under-attainment of milestones Low motivation for prevention
Modules 2-4	Event scheduling Practicing active behaviors (BAC)	Loss of response, contingent reinforcement
Modules 5-8	Identifying and countering pessimistic automatic thoughts, general beliefs and hopelessness Problem solving (CBT)	Cognitive distortions Pessimistic cognitive style/content Poor coping skills
Modules 9-12	Improving communication skills, coping transitions, conflict resolution Engaging new networks (IPT)	Lack of social support Social skills deficits Lack of peer support
Module 13-14	Flexibility/humor/persistence Community involvement Barriers to treatment (resiliency concept)	Inflexible responses Low levels of pro-social activities
Parent Program		
Modules 1-2	Activism	Cultivating strengths
PIP	Connectedness Affect recognition	Encourage discussion, behavioral activation Resiliency behaviors and expression of emotion

Note: PCP MI = Primary Care Physician Motivational Interview, PIP = Parent Intervention Program, BAC =

Behavioral Activation, CBT = Cognitive Behavioral Psychotherapy, IPT = Interpersonal Psychotherapy

Table 2

Sites and Gender, Race/Ethnicity, and Insurance Status

Site	Gender (% Female)	Race/Ethnicity	Insurance Status
Federally Qualified Health Center (FQHC) Primary Care sites (4 sites total)	65%	83% AA* (N=4,565 visits) 9% Latino (N=495 visits) or 1,200 unique patients (N=996 AA, N=108 Latino) >400 at risk for depression 8% Caucasian/Other	75% Medicaid 16% Uninsured 9% "Private insurance
School-Based Clinic (affiliated with FQHC above)	65%		
Public Health Clinic and affiliated community mental health clinic	65%	10% AA, 84% Latino with estimated N=400 adolescent visits/year 6% Caucasian/Other	60% Medicaid 40% Uninsured

Note: AA = African American

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