

CULTURAL ADAPTATION IN MENTAL HEALTH PROGRAMMING:

ARE WE DOING ENOUGH TO PROMOTE CHANGE?

AN ABSTRACT

SUBMITTED ON THE SIXTEENTH DAY OF DECEMBER 2015

TO THE DEPARTMENT OF PSYCHOLOGY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

OF THE SCHOOL OF SCIENCE AND ENGINEERING

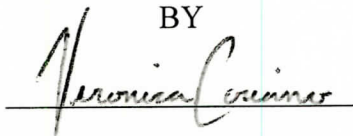
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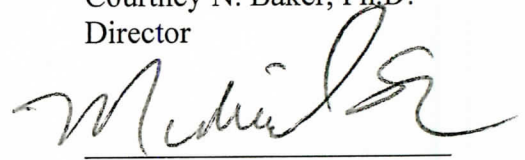


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## Abstract

Over the last decade, cultural adaptation has emerged as a promising method to reduce mental health disparities that exist between White and ethnic minority groups. Although some research has been done to develop a common language for adapting interventions for physical health (Davidson et al., 2013) and to culturally adapt mental health interventions in adult populations (Barrera et al., 2013), minimal research has evaluated cultural adaptation in the context of early childhood mental health. Given the promise of effective early childhood prevention and intervention programs to prevent negative outcomes and reduce societal costs later in life, understanding cultural adaptation in this literature is critical. Due to the lack of a common measure to identify and evaluate cultural adaptation, the first aim of this study was to develop a tool that will provide a standardized method for researchers to rate the level of cultural adaptation in evidence based programs that are being considered for use with ethnic minority populations. By applying this tool to a subset of studies ( $n=9$ ) from a systematic literature review of early childhood prevention and intervention studies (Baker, 2014), the second aim focused on revealing the extent to which cultural adaptation is being implemented within early prevention and intervention programming. A meta-analysis was conducted using these nine studies to evaluate the relationships between cultural adaptation, treatment fidelity, and intervention outcomes. Inclusion criteria for study selection included a large ethnic minority sample (75% or more of the target population, including children and parents), externalizing behavioral outcomes for preschoolers (age 3-5), and quantitative, group level data for the outcome of interest. Descriptive statistics and a random effects meta-analysis with meta-regression were conducted to evaluate these relationships. The results

of this study indicate that while some features of cultural adaptation are being mentioned in the literature, there is a lack of explicit use of terminology to readily identify whether or not cultural adaptation is being implemented within early childhood prevention and intervention programming. The average effect size was medium ( $d = .49$ ). Although this study did not find a relationship between cultural adaptation and intervention effectiveness, a positive relationship between treatment fidelity and intervention effectiveness was found.

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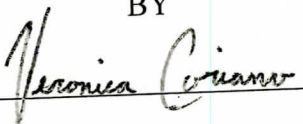
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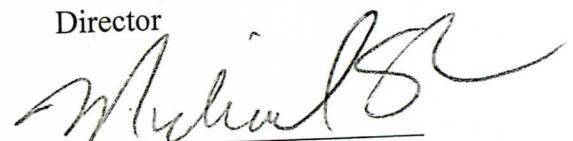
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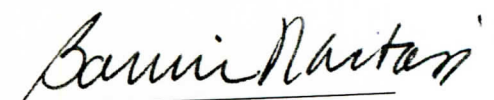
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## Introduction

The U.S. Census Bureau predicts that by the year 2060, 57% percent of the U.S. population will identify as ethnic minorities (United States Census Bureau, 2012). In 2009, 44% of children in the U.S. identified as ethnic minorities, and this number is projected to rise to 62% by 2050 (Horn et al., 2009). In the U.S., health disparities along racial lines continue to threaten the well-being of members of ethnic minority groups (Barrera, Castro, Stryker, & Toobert, 2013). For example, according to the National Institute of Allergy and Infectious Diseases, disparities in rates of infectious diseases and diseases of the immune system are closely related to differences in race/ethnicity, education, and socioeconomic status (U.S. Department of Health and Human Services, 2013), with ethnic minorities and those with less education and lower socioeconomic status having the highest rates of illness. African American children born in the United States are 2.5 times more likely than White children to die before their first birthday (Satcher & Higginbotham, 2008), and, in the year 2000 alone, 40.5% more deaths occurred within the African American community than in the White community. This translates into the loss of 83,570 lives, across all age groups, that would not have occurred if the mortality gap between Blacks and Whites were eliminated (Satcher et al., 2005).

Health disparities are not limited to physical health, but extend to mental health as well. While ethnic minorities report overall lower levels of mental health disorders than Whites, disparities in mental health care lead to worse mental health outcomes for ethnic minority group members who experience mental health problems. For example, ethnic minorities who become ill are more likely to experience symptoms that are more



persistent, severe, and disabling than Whites. Ethnic minorities also report lower levels of psychological well-being and higher levels of psychological distress than their White counterparts, despite a lower prevalence of common mental health disorders (McGuire & Miranda, 2008).

While treatment at all ages is important, it is well documented that early childhood prevention and intervention efforts are highly effective, altering negative lifetime trajectories and reducing long-term societal costs in both adolescence and adulthood (e.g., school removal, juvenile delinquency, adult imprisonment, underemployment) (Karoly et al., 1998; Wilson, 2014). While there are many evidence-based programs (EBPs) available to treat mental health concerns in early childhood (e.g., Healthy Steps, Fast Track), cultural differences have not typically been considered when implementing these programs among ethnic minority groups (Forehand & Kotchick, 1996). Historically, mental health research has been conducted in a Euro-American context. Therefore, the subsequent concepts, theories, and resulting programs and interventions derived from this research may have limited applicability to other racial/ethnic groups as they do not take into consideration the unique experiences, strengths, and needs of those groups (Cardemil, 2010; Lau, 2006; Sue, 2001).

Lack of inclusion of ethnic minorities in research has the potential to result in programs that lack relevance to ethnic minority groups. For example, the effectiveness of parent training programs, which have been highly effective in treating externalizing behaviors in children, is speculated to be reduced for ethnic minority groups due to mismatches in cultural practices and values between program developers and the target population (Forehand & Kotchick, 1996). Mismatches may include differences in

opinions regarding certain disciplinary practices (e.g., spanking) or a lack of inclusion of non-traditional family members (e.g., fictive kin) in the intervention (Forehand & Kotchick, 1996). Possibly, as a result of mismatches, ethnic minority parents are not as likely to enroll in parent training programs as their White counterparts (Baker, Arnold, & Meagher, 2011). Additionally, if program goals are not relevant to members of the target population, they are not likely to be engaged, which contributes to higher attrition rates and reduced opportunity for positive outcomes (Castro, Barrera, & Holleran Steiker, 2010).

As the U.S. population continues to diversify, it is increasingly important that the services provided are designed to address the unique needs of its population by taking into account the values, norms, traditions, and belief systems of individual groups. Taking these factors into account will help researchers to develop and implement prevention and intervention services that are meaningful, relevant, and effective for ethnic minority groups. In correspondence with the diversifying U.S. population, the question, "What treatment, by whom, is most effective for this individual with that specific problem, and under which set of circumstances?" needs to be addressed if we ever hope to provide the most effective care to all members of our diverse society (Paul, 1967, p. 111). Over the last decade, cultural adaptation of evidence-based practices has emerged as a promising answer to this question.

### **Evidence-Based Practices**

In 2005, the American Psychological Association (APA) Presidential Task Force on Evidence-Based Practice defined an Evidence Based Practice (EBP) in psychology as "the integration of the best available research with clinical expertise in the

context of patient characteristics, culture, and preferences” (APA Presidential Task Force on Evidence-Based Practice, 2006, p. 273). Rigorous research, clinical experience and expertise, and documented efficacy trials are all part of the development of an EBP (Barrera, Castro, & Holleran Steiker, 2011). Some evidence-based mental health programs for young children have included ethnic minority samples in their development stages and have produced favorable outcomes among various ethnic groups. For example, Incredible Years, a Parent Management Training (PMT) intervention designed to teach parents strategies to reduce child behavioral problems, has been shown to reduce behavior problems in African Americans, Whites, Asians, and Latinos (Lau, 2006). However, other PMT intervention programs such as Healthy Steps and Fast Track have been more effective in treating Whites than ethnic minorities, which demonstrates a need for improving the effectiveness of EBPs with ethnic minority children (Lau, 2006). Modifying already existing EBPs for use with minority populations can be less time consuming, more cost effective, and equally effective in producing favorable outcomes as developing EBPs specifically for use with ethnic minority populations (Falicov, 2009). However, because EBPs are developed with the intention of producing reproducible outcomes through an emphasis on fidelity, there are concerns that they are too inflexible to accommodate cultural differences (Kendall & Beidas, 2007).

### **Treatment Fidelity in Evidence-Based Practices**

Treatment fidelity refers to the extent to which a program is implemented in the way it was intended. Research has demonstrated that programs that are implemented with high treatment fidelity produce better outcomes in comparison to those that are not (Durlak & DuPre, 2008). Although there is extensive research supporting the relationship



between treatment fidelity and improved outcomes, many researchers do not measure and report on it (Perepletchikova et al., 2009). Without treatment fidelity information, it becomes more difficult to interpret outcome data as we are unable to determine how much of the measured change was due to the program being implemented as designed versus how much other factors (e.g., adaptations) may have contributed to outcomes. It is important to note that no published studies have documented 100% fidelity across all levels of implementation; in fact, positive outcomes have been attained with levels of treatment fidelity around 60% which leaves room for adaptations to occur without negatively impacting outcomes (Durlak & Dupre, 2008). In fact, current thinking suggests that treatment fidelity and adaptation are not mutually exclusive, and that it is possible that they can both contribute to better outcomes (Durlak & Dupre, 2008; Kendall & Beidas, 2007). Unfortunately, because the majority of previous research has considered program adaptation and treatment fidelity as incompatible, there is little research evaluating the relationship between adaptation and outcomes.

### **Cultural Adaptation of Evidence-Based Practices**

Cultural adaptation is a method used to modify EBPs to better suit the needs of ethnic minority groups. Although some research has been done to develop a common language for adapting interventions for physical health (Davidson et al., 2013) and to culturally adapt mental health interventions in adult populations (Barrera et al., 2013), minimal research has evaluated cultural adaptation in the context of early childhood mental health. Cultural adaptation is defined as “the systematic modification of an evidence-based intervention or intervention protocol to consider language, culture, and context in such a way that it is compatible with the client’s cultural patterns, meaning,

and values” (Bernal et al., 2009, p. 362). A common example of cultural adaptation is changing the program materials into the native language of the target population (Kumpfer et al., 2008). Other examples include changing graphics to depict individuals from the target population, addressing financial barriers to participation, and making sure the intervention goals and targeted outcomes match the values of the target population (Davidson et al., 2013).

Programs that are culturally adapted are not only more appealing, but may actually improve effectiveness by providing services that are meaningful and relevant to their target population. When cultural adaptation is carried out effectively, it has been demonstrated to increase engagement, attendance rates, motivation, and behavior change (Castro, Barrera, & Martinez, 2004; Griner & Smith, 2006). For example, Griner and Smith (2006) conducted a meta-analysis of 76 culturally adapted mental health programs in which they found an overall positive effect in the outcomes of ethnic minority children for programs that had been culturally adapted. One of the most notable findings was that programs implemented in the participants’ native language were twice as effective as those implemented in English. As evidence grows in support of the benefits of culturally adapted programming, the need to intricately weave adaptation into program development and implementation while maintaining treatment fidelity, has become increasingly relevant to the goal of eliminating health disparities (Castro et al., 2004; Griner & Smith, 2006).

### **Defining Culture**

Culture can be defined as the attitudes, behaviors, beliefs, and values shared by a group of people (Gonzales, Lau, Pina, & Barrera, 2014). Although characteristics of



culture include a variety of features such as language, religion, cuisine, social habits, music and other art forms, most previous research on cultural adaptation in the U.S. has equated culture with race/ethnicity (Gonzales et al., 2014). While all aspects of culture are important, because health disparities in the U.S. often occur along racial lines and because race/ethnicity is one of the most salient, well-researched cultural categories in the U.S., our focus on culturally adapted programming throughout this study will refer to programming that is modified to address the specific needs of members of ethnic minority groups. It is important to acknowledge that health disparities are also heavily influenced by socioeconomic status (SES), but that in the U.S., low SES and ethnic minority status are heavily intertwined. For example, in 2014, only 13% of White children lived in poverty, while 38% of Black and 32% of Latino children lived in poverty ("Kids Count Data Center," 2014). Thus, cultural adaptation research focused on meeting the needs of ethnic minority groups in the U.S. often also means meeting the needs of groups who have less money and education and fewer resources than the average person in the U.S.

### **Types of Cultural Adaptation**

Previous research has identified two distinct forms of cultural adaptation: surface structure adaptation and deep structure adaptation (Castro, Barrera, & Holleran Steiker, 2010). Surface structure adaptation can be defined as changes in program activities and materials to address observable or superficial aspects of a culture (Castro et al., 2010; Barrera et al., 2013). For example, translating intervention materials into Spanish is a surface structure adaptation. The second form of cultural adaptation is deep structure adaptation, which can be defined as the integration of culture into program messages and

activities. An example of deep structure adaptation is considering issues and behaviors unique to the target population and finding ways to meaningfully address them (Davidson et al., 2013). Because the aspects of culture that need to be identified to make surface level changes are readily observable, these types of adaptations are more likely to occur than deep structure adaptations, which require a deep understanding of values, beliefs, and needs of the target population.

While surface structure and deep structure adaptation has been a useful way to categorize the features of cultural adaptation, by definition, neither of them accurately capture logistical program changes that are made to better accommodate potential participants or clients. To fill this gap, structural adaptation is proposed as a third feature of adaptation. Structural adaptation can be defined as changes in program logistics which make programs more accessible and appealing to the target group. Some examples of adaptations in this category are utilizing incentives relevant to the target population and addressing physical and financial barriers to participation (e.g., providing transportation and child care during sessions) (Barrera et al., 2013). Although the features of structural adaptation have been discussed in previous studies, most often as a form of surface level adaptation (Barrera et al., 2013), they have not been described as a distinct form of adaptation. However, features within this category target unique barriers to participation which are not adequately characterized by the current dichotomy of surface structure and deep structure adaptations.

### **Measuring Cultural Adaptation**

Currently, no measure of cultural adaptation exists in the literature. Some public health researchers use stage models, such as Wingood and DiClemente's (2008) ADAPT-

ITT model, to provide a general guideline or framework to conceptualize the steps necessary for cultural adaptation. However, this model, used for HIV intervention adaptation, and other similar existing frameworks do not provide an objective, quantifiable, or reliable method to measure the level of cultural adaptation in a program. "Science cannot study what it cannot measure accurately and cannot measure what it does not define" (Durlak & Dupre, 2008, p.342), so there remains a need for more research to be conducted in order to develop a tool which is able to bridge the gap between the conceptual stages of cultural adaptation and the practical steps of doing it. Such a tool can be used during intervention adaptation to ensure that all appropriate aspects of adaptation are considered. For EBPs that have already been adapted, researchers will be able to evaluate the extent of the adaptation as well as identify areas that can be adapted to better suit the needs of the target population. This tool would be distinct from other tools or guidelines that currently exist and fill an important gap in the cultural adaptation literature.

### **The Current Study**

Given the benefits of culturally adapted programming in addressing the needs and improving the outcomes of ethnic minorities, we would hope to see at least moderate amounts of adaptation occurring in prevention/intervention programming. However, despite the excitement over cultural adaptation, it appears that many programs published in the literature are a) not being adapted or b) not explicitly mentioning the use of adaptation in their methods, both of which downplay its importance and benefits. Thus, the first aim of this study was to develop a tool that will provide a standardized method for researchers to rate the level of cultural adaptation in EBPs that are being considered



for use with ethnic minority populations. This tool will help to decide whether or not a program has been sufficiently adapted and to highlight areas where adaptation might occur to make the program more suitable. The second aim of this study was to apply the tool to a set of studies derived from a systematic literature review (Baker, 2014) in order to reveal the extent to which cultural adaptation is being implemented within early prevention and intervention programming. Given the potential for cultural adaptation that maintains high treatment fidelity to improve intervention effectiveness, the second aim of this study also evaluated the relationship between cultural adaptation and intervention effectiveness as well as the relationship between treatment fidelity and intervention effectiveness in early childhood prevention and intervention programs.

Specifically, by applying the tool to studies featuring large ethnic minority group samples from a systematic literature review of early childhood prevention and intervention programs (Baker, 2014), I hypothesized the following: 1) cultural adaptation will rarely be explicitly discussed in the early childhood prevention and intervention literature; 2) the majority of early childhood behavioral interventions have not been adapted; and 3) the majority of programs that have been adapted demonstrate only moderate levels of adaptation, at best. Additionally, I hypothesized that there would be 4) a positive relationship between level of cultural adaptation and intervention effectiveness as well as 5) a positive relationship between treatment fidelity and intervention effectiveness.

## **Method**

### **Development of the Cultural Adaptation Checklist**

An extensive review of the cultural adaptation literature informed the development of the Cultural Adaptation Checklist (see Appendix A for the Checklist). Searches for relevant literature were conducted using the search terms “cultural adaptation,” “cultural tailoring,” and “culturally attuned.” Each of these terms was searched individually, along with being paired with the term “evidence based program.” In addition, these terms were each paired with the terms “tool,” “toolkit,” “rating scale,” “model,” “method,” “framework,” and “guideline” in order to identify any previously existing tools that evaluate cultural adaptation. Searches were conducted using the PsycINFO, PsycArticles, ERIC, PubMed, and Social Work Abstracts databases. After extensive pairings, the search terms were narrowed to “cultural adaptation of evidence based program” which yielded 301 results and “cultural adaptation framework” which yielded 960 results. Searches were restricted to articles published in peer-reviewed journals. Abstracts for all articles were reviewed in order to determine whether they were relevant for inclusion in the development of the Cultural Adaptation Checklist.

Two distinct categories of adaptation were derived from the literature and included in the Checklist: surface level adaptation and deep structure adaptation (Barrera et al., 2013; Castro, Barrera, & Holleran Steiker, 2010). A third category of adaptation, structural adaptation, was added. The features within this category are discussed throughout the literature (e.g., Cardemil, 2010; Barrera et al., 2013; Davidson et al., 2013), but they are not adequately captured by the definitions of surface level or deep structure adaptation. The Checklist includes features derived from numerous sources (see



Appendix B for explanations/examples of each feature); however, Barrera et al. (2013) and Davidson et al. (2013) were the primary sources for the features included as both studies include extensive lists of features of cultural adaptation (see Appendix C for a complete list of sources). In order to be included on the Checklist, each feature needed to be discussed in a minimum of one additional article besides the primary sources; however, most of the features included were referenced in multiple sources. Additionally, a panel of three experts was asked to review the Checklist and offer feedback and suggestions before it was finalized.

The final Checklist includes three categories of adaptation. Each of the three categories of adaptation includes a list of features that are representative of that category. There are 10 features of surface level adaptation, 5 features of structural adaptation, and 10 features of deep structure adaptation. The Checklist should be applied separately to individual research articles that report intervention results. Each item on the Checklist is marked as “yes” or “no” indicating the presence or absence of that feature in the study. Studies receive 1 point for each feature listed as “yes” in the Checklist. For example, if the study was translated into Spanish using back-translation, the study received a point for the surface level feature “translation/back-translation of materials (linguistic strategies).” The maximum score possible is 25.

A review of gold-standard culturally adapted programs informed the qualitative interpretation of the numerical score. These programs included the PARTNERS youth violence prevention program (Leff et al., 2010), the PLAYS program (Leff et al., 2004), and the Dream Project (Islam et al., 2014). These programs were selected due to the high levels of cultural and contextual variables that were considered in the development and

implementation phases of these programs. The review of these gold-standard programs revealed that most programs that have been extensively adapted only include 10-15 of the 25 proposed features of adaptation. Additionally, this review indicated that at least 3 of the adaptation features included in the gold-standard programs were deep structure adaptations.

Thus, the qualitative meaning associated with a given numerical score on the Checklist is based on the adaptation information garnered from these gold-standard programs. Specifically, a minimum number of deep structure adaptations must be included in order to receive the highest ranking of “optimally adapted.” A score of 0 indicates that a program is not culturally adapted. A score of 1-3 indicates that a program includes minimal elements of cultural adaptation. A score of 4-6 suggests that a program is moderately adapted and likely to appeal to the target population. A score of 7-9 indicates that a program includes several elements of cultural adaptation and is likely to engage target population. A score of 10 or more indicates that a program is optimally adapted and is likely to be embraced or accepted by target population. See Appendix A for complete qualitative and quantitative scoring information.

### **Application of the Checklist**

The Checklist, developed in Aim 1, was applied to a subset of studies included in a systematic review of the literature of early childhood prevention and intervention programming in order to evaluate Aim 2 hypotheses. Aim 2 hypotheses included evaluating the extent to which cultural adaptation is being implemented within early childhood prevention and intervention programs and the relationships between the degree of cultural adaptation, treatment fidelity, and intervention effectiveness (effect size).

**Systematic literature review of early childhood prevention and intervention programming.** A systematic literature review of prevention and intervention programs targeting socioemotional development in preschoolers was conducted as part of larger study (Baker, 2014). Search criteria were refined based on a series of comprehensive Boolean queries, developed in tandem with a librarian. The focused-upon terms included “socioemotional,” “preschool,” “intervention,” and “treatment integrity.” There were no date restrictions imposed, both peer-review and non-peer-reviewed articles were obtained, and only English-language articles were included. The completed search included all relevant articles published through 2012. Out of 1693 unique articles found through the comprehensive search, 342 were selected for abstraction and data analysis based on inclusion/exclusion criteria. The inclusion criteria were as follows: a focus on social, emotional, or behavioral outcomes; the use of a prevention or intervention program; and the inclusion of at least some preschoolers, their caregivers, teachers, or healthcare providers.

Six trained research assistants abstracted the articles to obtain the qualitative study data. All research assistants underwent extensive training to ensure that their independent abstraction of articles was completed correctly. The training process included abstracting a number of training articles – studies for which there was already a gold-standard abstraction – and comparing their responses to the correct ones. When there were discrepancies, they were discussed until the research assistant understood the correct response. Following this training period, a percentage of journals reviewed by research assistants were abstracted by both the trainer and trainee and compared for the first few weeks. If no discrepancies occurred after this stage of the training, the research



assistant was permitted to abstract articles independently. If there were discrepancies, the training process continued until they were resolved. During the inclusion, abstraction, and coding processes, group discussions were held as necessary to resolve questions until a consensus was reached. Following the abstraction process, ten percent of all abstracted articles were independently abstracted to ensure interrater reliability (IRR).

Following the completion of the initial abstraction, these qualitative study data were then coded by four research assistants. If the information provided from the abstraction was insufficient to definitively determine the correct code, the research assistant referenced the original article and added clarifying information to the abstraction columns. If a decision still could not be reached, the article was discussed in a team meeting until a coding consensus was reached. Two graduate students in psychology reviewed the initial coding of qualitative data and brought any discrepancies to the attention of the group at the weekly meeting, where the final coding decision was either affirmed or corrected.

Information abstracted included 25 variables, including demographic data (subject age, gender, socioeconomic status, location, and ethnicity); study data (design, measures used, and target population); intervention data (type, target, and outcomes); and, if appropriate, treatment integrity data. IRR was 89% across all study variables.

**Variables of interest abstracted from the systematic literature review.** The variables of interest for the current study include 1) race/ethnicity 2) treatment integrity, and 3) effect size. See Table 1 for a summary of characteristics of included studies, including variables of interest. Race/ethnicity information was abstracted for study participants in each study. A treatment fidelity score (0-3) was determined by the

presence or absence of an operational definition of the study methods, and the presence or absence of any form of treatment fidelity information (qualitative or quantitative). The effect size was determined by identifying the point estimate, Cohen's  $d$ , for each study. If Cohen's  $d$  was not provided by the study authors, it was calculated by the primary researcher with the assistance of two web-based effect size calculators (Lenhard & Lenhard, 2015; Wilson, n.d.)

#### **Applying the checklist to relevant articles from the systematic literature**

**review.** First, inclusion criteria were defined for the present study. These included the following: a large ethnic minority sample (75% or more of the target population, including children and parents), externalizing behavioral outcomes for preschoolers (age 3-5), and pre-post data for the intervention group or outcome data for both the intervention and control group. Externalizing behaviors were the focus of this study as many ethnic minority children, particularly African American boys, are rated high in externalizing behaviors which often results in harsh disciplinary action, including suspensions and school removal. So, while there were studies in the larger systematic literature review that focused on other outcomes (e.g., social skills), externalizing behaviors were chosen as the outcome of interest as they are commonly reported for ethnic minority children and frequently lead to negative school outcomes, juvenile delinquency, and adult imprisonment (Wilson, 2014). Nine studies from the larger systematic literature review of early childhood prevention and intervention programs (Baker, 2014) fit these inclusion criteria.

Second, the Checklist was applied to each of these nine studies by the first author. A cultural adaptation score (0-25) was calculated for each study. After a trained research



assistant rescored all nine of the studies independently, intraclass correlation coefficients (ICCs) were calculated to evaluate IRR. IRR for the application of the Checklist was 84% across all studies included. The IRR of 84% is above the acceptable standard for IRR in the field of psychology which is 80% (Bock, Brennan, & Muraki, 2002).

### **Analytic Approach**

The creation of the Checklist was the goal of Aim 1 of this study. The qualitative meaning associated with the numerical scores produced by the application of the Checklist was used to evaluate Aim 2 hypotheses. First, the hypothesis that cultural adaptation would rarely be explicitly discussed in the early childhood prevention intervention literature (in less than <25% of the studies included) was evaluated by reviewing each of the studies for the explicit use of the term cultural adaptation, or other synonymous terms (e.g., cultural tailoring). Percentages were determined by dividing the number of studies explicitly discussing the use of cultural adaptation by the total number of studies included. Second, the hypothesis that the majority of early childhood behavioral prevention and intervention programs have not been adapted (>50% of the studies included) was evaluated by carefully reviewing each study using the Checklist as a guide to identify whether any features of adaptation were included and marking “yes” or “no” in the appropriate column of the checklist. Programs that were not adapted were scored zero on the Checklist. The total number of studies that were not adapted was divided by the total number of studies included ( $n=9$ ) to yield a percentage. Third, the hypothesis that the majority of programs that have been adapted (>50%) demonstrate only moderate levels of adaptation at best (i.e., less than seven points on the Checklist) was evaluated by giving one point for each feature of cultural adaptation marked “yes.”

The total number of studies including fewer than seven features of adaptation was divided by the total number of studies including one or more features of adaptation (i.e., the total number of programs that have been adapted) to yield a percentage. Fourth, meta-regression was used to test the relationships between level of cultural adaptation and intervention effectiveness, represented by study effect size. Fifth, the same analysis was used to evaluate the relationship between level of treatment fidelity and intervention effectiveness. Analyses for hypotheses four and five were conducted using Comprehensive Meta-Analysis Software (CMA, 2014).

## **Results**

### **Descriptive Statistics**

The overall level of cultural adaptation for the studies included was moderate ( $M = 6.3$ ,  $SD = .63$ ), with a range of 2-9, out of a possible range of 0-25. Overall treatment fidelity scores were average ( $M = 1.76$ ,  $SD = .34$ ), with a range of 1-3, out of a theoretical range of 0-3. The treatment effect sizes reported in the individual studies ranged from ( $d = .03$ -  $1.03$ ,  $SD = 2.52$ ).

### **Prevalence of Cultural Adaptation**

The first hypothesis, that cultural adaptation will rarely be discussed in the early childhood prevention intervention literature (<25% of the studies included) was supported. Only one out of the nine studies included, 11.1%, explicitly mentioned the term “cultural adaptation” or a synonymous term. Contrary to the second hypothesis, that the majority (>50%) of early childhood prevention and intervention programs would not have been adapted, all nine studies evaluated included at least one feature of adaptation. Hypothesis three, that majority of studies (>50%) that were culturally adapted, were only

moderately adapted at best, was supported as the majority of programs, 55.6%, that were adapted received less than seven points on the checklist. An analysis of the features included across all of the studies revealed that 33.3% of the adaptations were surface structure, 36.84% were structural (logistical), and 28.1% were deep structure. In this study, scores on the Cultural Adaptation Checklist ranged from 2-9. None of the studies included had enough features (10+) to be quantitatively described as “optimally adapted.”

### **Quantitative Analyses**

Meta-analysis and meta-regression were used to evaluate hypotheses four and five. First, a meta-analysis was conducted in order to determine the overall effectiveness (effect size) for the studies included. This analysis was conducted using a random effects model and produced a medium effect size ( $d=.49$ ,  $p<.01$ ,  $se=0.10$ ). This indicates that, overall, the studies produced positive outcomes, on average reducing child externalizing behaviors by half a standard deviation (see Figure 1).

Second, meta-regression was used to evaluate the relationship between cultural adaptation and intervention effectiveness (effect size), and the relationship between treatment fidelity and intervention effectiveness. The fourth hypothesis, that there would be a positive relationship between cultural adaptation and effect size, was not supported. The results of the meta-regression were not significant ( $\beta=-0.05$ ,  $df=1$ ,  $p=0.30$ ,  $se=0.14$ ). These results suggest that changes in effect size related to cultural adaptation are no greater than those we would expect to see by chance (see Table 3 and Figure 2). Hypothesis five, that there was a positive relationship between treatment fidelity and effect size was supported ( $\beta=0.31$ ,  $df=1$ ,  $p=0.03$ ,  $se=.05$ ). In this study, increased treatment fidelity was related to improved outcomes (see Table 4 and Figure 3), which



means that for each point increase in treatment fidelity, we would expect to see a 1/3 standard deviation increase in outcomes.

### **Discussion**

The purpose of this study was to develop a concrete method to evaluate the level of cultural adaptation in intervention programming, since existing frameworks, guidelines, and models do not provide an objective, reliable, or quantifiable method to do so. After establishing this method, the next aim was to apply this tool to the existing literature to evaluate the extent to which cultural adaptation is being referenced and implemented in the early childhood prevention and intervention literature and to explore the relationships between cultural adaption, treatment fidelity, and intervention effectiveness as previous research has noted improved outcomes in relation to both cultural adaptation and treatment fidelity (Castro et al., 2004, Durlak & Dupre, 2008, Griner & Smith, 2006). The need for a tool to help evaluate cultural adaptation is evidenced by the fact that in the most comprehensive meta-analysis to date, which included 76 studies and was conducted by Griner and Smith (2006), the only requirement was that the studies explicitly mentioned the use of cultural adaptation. In other words, Griner and Smith (2006) did not require the studies to identify the number or type of adaptations they made. The obvious next step in this literature is to recommend that this information be included when conducting research and to create a standardized method to researchers to evaluate and report it.

To address Aim 1 of the study, a standardized tool to measure the level of cultural adaptation, the Cultural Adaptation Checklist, was developed. The high level of interrater reliability, 84%, between the primary researcher and a trained research assistant in



applying the Checklist to the included studies revealed that the Checklist is a reliable method for identifying features of cultural adaptation. Additionally, a review of the Checklist by a panel of experts in cultural adaptation, support the face validity and content validity of the Checklist. This tool is the first of its kind, and it can be used by researchers to evaluate how much a program has already been adapted or utilized to guide adaptation of EBPs in the future. In addition, it provides researchers a standardized method to identify and communicate the methods of cultural adaptations with one another and, over time, to better evaluate the impact that certain forms or features of cultural adaptation may have on intervention outcomes.

To address Aim 2, the Cultural Adaptation Checklist was applied to a set of nine studies from a larger systematic literature (Baker, 2014) that met inclusion criteria. In line with the first hypothesis, only one study explicitly mentioned the use of cultural adaptation. However, contrary to the second hypothesis, the application of the Checklist to these studies revealed that the majority of the studies include did mention at least one feature of cultural adaptation. Because listing one feature of adaptation was the criteria to be considered culturally adapted, this bar may have been set too low, as the intentionality of the adaptation or the form of adaptation was not taken into consideration. Because of a lack of research in this area, it is difficult to determine what amount or form cultural adaptation is needed to improve outcomes (Baumann et al., 2015). More research needs to be conducted to gather additional documentation and rigorously test culturally adapted programs to build the evidence base for both the process and outcomes of these efforts (Lewin et al., 2015).

In line with the third hypothesis, the majority of the studies were minimally to moderately adapted at best (i.e., less than seven features of adaptation included). Furthermore, none of the studies met the criteria to be considered optimally adapted (i.e., ten or more features of adaptation included). It appears that many researchers make at least some adaptations to their program; however, the limited use of a common language to describe cultural adaptation methods, and the rarity of explicitly using the term cultural adaptation, limits the ability of researchers to gain knowledge from each other regarding successful methods of cultural adaptation (Baumann et al., 2015; Lewin et al., 2015). In addition, the majority of the cultural adaptations identified in the Checklist were structural, 36.84%, followed by surface structure adaptations, 33.33% of the adaptations identified. Deep structure adaptations occurred the least often, 28.10% of the adaptations identified, which is unsurprising as they are more challenging to accomplish than other forms of adaptation. This would be an interesting direction to take this research in the future by evaluating how different forms of adaptation might impact outcomes differently.

Since the overall amount of adaptation that is being conducted is less than ideal, the ability to evaluate its impact on treatment effectiveness is limited. Although a meta-regression analysis did not support the hypothesis that there increasing cultural adaptation is associated with improved outcomes, the lack of variability in cultural adaptation scores may have impacted the results. The range of scores was truncated, spanning between 2 and 9 out of a theoretical possible range of 0 and 25, and none of the studies included ten or more features of adaptation. It is possible that the inclusion of studies with ten or more features of adaptation (i.e., optimally adapted studies) may have changed the direction or

magnitude of the relationship between cultural adaptation and effect size, and the results of this study may have been more in line with previous research that support the benefits of cultural adaptation in improving outcomes in adolescent and adult populations (Barrera et al., 2013; Durlak & Dupre, 2008; Griner & Smith, 2006).

Despite the outcome of this study, culture still remains an important factor to consider as even minimal gains or improvement (e.g., attending one more session; paying attention for a few extra minutes), as a result of cultural adaptation, could potentially have important impacts on treatment outcome. It is also possible that the impact of cultural adaptation on effect size would be greater if the study inclusion criteria were different. For example, if we included a broader array of outcomes (e.g., internalizing and externalizing behaviors, social skills, etc.) or if the sample populations were more ethnically homogenous (e.g., 95% or more ethnic minority). Finally, there is a possibility that the Cultural Adaptation Checklist simply may not work; however, because it has both face and construct validity, it is likely that some of the deficiencies (e.g., error) revealed by the application of the tool to already existing studies is due to a lack of the inclusion of cultural adaptation as an important concept which is clearly discussed and readily defined. The apparent lack of criterion-related validity as well as the next steps for improving criterion-related validity is further addressed in the limitations and future directions.

This is the first study in which a meta-analysis was conducted in order to address the relationship between treatment fidelity and effect size for a set of studies focused specifically on early childhood prevention and intervention programs. In line with previous research, the relationship between treatment fidelity and treatment effectiveness



(i.e., effect size) was supported as an analysis of these variables demonstrated a positive relationship them, suggesting that treatment fidelity has a positive impact on treatment effectiveness. This relationship confirms previous findings that treatment fidelity is associated with larger effect sizes (Durlak & Dupre, 2008; Kendall & Beidas, 2007). The study also revealed that although studies typically mention the importance of treatment fidelity and mention using at least one measure of treatment fidelity (e.g., a treatment manual), they often do not report on this information quantitatively. In this study, only two of the nine studies measured treatment fidelity quantitatively. However, if quantitative information was provided, it would allow for researchers to more precisely capture the relationship between treatment fidelity and intervention effectiveness as simply monitoring treatment fidelity does not necessarily mean that fidelity was high.

### **Limitations**

Although this study had several strengths, such as the development of a unique tool to evaluate cultural adaptation and bringing awareness to the potential benefits of cultural adaptation and treatment fidelity, the study had some limitations as well. First, in this study, culture was defined as race/ethnicity; however, race/ethnicity is just one of several features that can be used to describe or define culture which may be just as important as the consideration of race/ethnicity when adapting evidence-based programs depending on which aspects of an individual's culture is most salient to them (e.g., gender identity, religion, age, etc.). As culture is a dynamic and ever changing concept, exploring other types of cultural adaptation would be an interesting area for future research (Marsiglia & Booth, 2015). Second, the gold-standard studies that were used to develop the scoring system for the Cultural Adaptation Checklist were studies conducted



with adolescent and adult populations (Leff et al., 2010; Leff et al., 2004; Islam et al., 2014). It is important to recognize that these studies may consider factors that are different from those typically addressed in early childhood prevention and intervention studies. However, these studies were chosen because there were not any extensively adapted programs in the published early childhood prevention and intervention literature. This demonstrates the need for more work utilizing cultural adaptation in early intervention programs as it appears that these factors have largely been ignored in work with young children.

Third, the meta-regression analysis produced a lot of error, and the application of the Checklist in this study did not demonstrate a significant relationship between cultural adaptation and intervention effectiveness, but there are a number of reasons why this may have occurred. It is possible that the Checklist simply does not work and is not actually tapping into what it is intended to measure. However, extensive measures were taken to ensure that all of the existing literature on cultural adaptation was thoroughly reviewed and that all possible methods of cultural adaptation were considered (i.e., expert panel review). However, even if the Checklist demonstrates reliability and validity, it is possible that some studies included cultural adaptation features but simply did not mention these adaptations in the study, limiting the ability to accurately capture the relationship between cultural adaptation and treatment effectiveness. Unlike treatment fidelity, cultural adaptation is rarely explicitly mentioned in the literature, so it is difficult to determine whether or not cultural factors were intentionally addressed. However, like treatment fidelity, which gained recognition over the last couple of decades, cultural adaptation is slowly gaining the recognition it deserves. Perhaps, as more attention is

given to cultural adaptation, it will become easier for researchers to accurately capture the relationship between cultural adaptation and treatment effectiveness as cultural adaptation will begin to be explicitly mentioned in the research.

### **Implications and Future Directions**

One important implication of this study is that treatment fidelity matters in early childhood prevention and intervention programs, and that intentionally implementing a program with careful attention that the key components and core ingredients of the program are fully employed during program implementation can contribute to more robust outcomes. Furthermore, the presence or absence of monitoring treatment fidelity is one indicator of the successful outcome of a program. However, due to a lack of quantitative information provided, this study only looked at the presence or absence of treatment fidelity measures. It did not look at any of the quantitative data produced from these measures, so future researchers may find it fruitful to measure treatment fidelity quantitatively and explore what level of treatment fidelity is needed to improve outcomes.

The Cultural Adaptation Checklist, developed from this study, can be used as a blueprint to help researchers to develop and evaluate culturally sensitive and culturally relevant programming that will improve mental health outcomes for ethnic minority children. Although a relationship between cultural adaptation and treatment effectiveness was not found in this study, the need for cultural considerations in prevention and intervention programming remains as programs that are culturally adapted have been demonstrated to increase intervention effectiveness in previous research (Castro et al., 2004; Griner & Smith, 2006). Culturally relevant programming has been shown to

increase attendance rates and engagement, both of which contribute to increased treatment fidelity and therefore indirectly impact treatment effectiveness. Using the Cultural Adaptation Checklist as a guide, future early childhood prevention and intervention studies can directly compare the effect size of culturally adapted and non-adapted programs. Researchers can also intentionally manipulate the number and types of and features of adaptation included in a study to help further explore the relationship between cultural adaptation and treatment effectiveness, and to better hone in on how to best implement cultural adaptation in practice to ensure that all children are able to benefit from EBPs.



## References

References marked with an asterisk indicate studies included in the meta-analysis.

APA Presidential Task Force on Evidence-Based Practice (2006). Evidence-based practice in psychology. *American Psychologist*, 61(4), 271-285.  
doi:10.1037/0003-066X.61.4.271

Baker, C. N. (2014, May). *Socioemotional promotion, prevention, and intervention programs for preschoolers: A systematic literature review and meta-analysis*. Poster presented at the annual meeting of the Society for Prevention Research, Washington, DC.

Baker, C. N., Arnold, D. H., & Meagher, S. (2011). Enrollment and attendance in a parent training prevention program for conduct problems. *Prevention Science*, 12, 126-138. doi: 10.1007/s11121-010-0187-0

Barrera, M., Castro, F.G., & Holleran Steiker, L.K. (2011). A critical analysis of approaches to the development of preventive interventions for subcultural groups. *American Journal of Community Psychology*, 48, 439-454. doi: 10.1007/s10464-010-9422-x

Barrera, M., Castro, F.G., Stryker, L.A., & Toobert, D.J. (2013). Cultural adaptations of behavioral health interventions: A progress report. *Journal of Consulting and Clinical Psychology*, 81(2), 196-205. doi: 10.1037/a0027085

- Baumann, A. A., Powell, B. J., Kohl, P. L., Tabak, R. G., Penalba, V., Proctor, E. K., ... & Cabassa, L. J. (2015). Cultural adaptation and implementation of evidence-based parent-training: A systematic review and critique of guiding evidence. *Children and youth services review*, 53, 113-120. doi: 10.1016/j.childyouth.2015.03.025
- Bernal, G., Jimenez-Chafey, M.I., & Domenech Rodriguez, M.M. (2009). Cultural adaptation of treatments: A resource for considering culture in evidence-based practice. *Professional Psychology: Research and Practice*, 40(4), 361-368. doi: 10.1037/a0016401
- Bock, R., Brennan, R. L., & Muraki, E. (2002). The information in multiple ratings. *Applied Psychological Measurement*, 26(4), 364-375.
- \*Brotman, L. M., Calzada, E., Huang, K. Y., Kingston, S., Dawson-McClure, S., Kamboukos, D., ... & Petkova, E. (2011). Promoting effective parenting practices and preventing child behavior problems in school among ethnically diverse families from underserved, urban communities. *Child development*, 82(1), 258-276. doi: 10.1111/j.1467-8624.2010.01554.x
- \* Brotman, L. M., Klein, R. G., Kamboukos, D., Brown, E. J., Coard, S. I., & Sosinsky, L. S. (2003). Preventive intervention for urban, low-income preschoolers at familial risk for conduct problems: A randomized pilot study. *Journal of Clinical Child and Adolescent Psychology*, 32(2), 246-257. doi: 10.1207/S15374424JCCP3202\_10

- \* Brotman, L. M., Gouley, K. K., Chesir-Teran, D., Dennis, T., Klein, R. G., & Shrout, P. (2005). Prevention for preschoolers at high risk for conduct problems: Immediate outcomes on parenting practices and child social competence. *Journal of Clinical Child and Adolescent Psychology*, 34(4), 724-734. doi: 10.1207/s15374424jccp3404\_14
- Cardemil, E. (2010). Cultural adaptations to empirically supported treatments: A research agenda. *The Scientific Review of Mental Health Practice*, 7(2), 8-21.
- Castro, F.G., Barrera, M., & Martinez, C.R. (2004). The cultural adaptation of prevention interventions: Resolving tensions between fidelity and fit. *Prevention Science*, 5(1), 41-45. doi: 10.1023/B:PREV.0000013980.12412.cd
- Castro, F.G., Barrera, M., & Holleran Steiker, L.K. (2010). Issues and challenges in the design of culturally adapted evidence-based interventions. *Annual Review of Clinical Psychology*, 6, 213-239. doi: 10.1146/annurev-clinpsy-033109-132032
- Comprehensive Meta-Analysis (Version 3) [Computer software]. (2014). Englewood, NJ: Biostat. Available from <http://www.meta-analysis.com>
- \*Conroy, M. A., Sutherland, K. S., Vo, A. K., Carr, S., & Ogston, P. L. (2014). Early childhood teachers' use of effective instructional practices and the collateral effects on young children's behavior. *Journal of Positive Behavior Interventions*, 16(2), 81-92.
- Davidson, E. M., Liu, J.J., Bhopal, R., White, M., Johnson, M.R.D., Netto, G.,...& Sheikh, A. (2013). Behavior change interventions to improve the health of racial and ethnic minority populations: A tool kit of adaptation approaches. *The Milbank Quarterly*, 91(4), 811-851. doi: 10.1111/1468-0009.12034



- Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American journal of community psychology*, 41(3-4), 327-350. doi: 10.1007/s10464-008-9165-0
- Falicov, C.J. (2009). Commentary: On the wisdom and challenges of culturally attuned treatments for Latinos. *Family Process*, 48, 292-309. doi: 10.1111/j.1545-5300.2009.01282.x
- Forehand, R., & Kotchick, B.A. (1996). Cultural Diversity: A wake-up call for parent training. *Behavior Therapy*, 27, 187-206. doi:10.1016/S0005-7894(96)80014-1
- Gresham, F. M., Gansle, K. A., Noell, G. H., & Cohen, S. (1993). Treatment integrity of school based behavioral intervention studies: 1980–1990. *School Psychology Review*, 22(2), 254-272.
- Gonzales, N. A., Lau, A., Murray, V. M., Pina, A., & Barrera, M. (2014). Culturally adapted preventive interventions for children and youth. In D. Cicchetti (Ed.), *Developmental Psychopathology*, (3rd. ed.). Hoboken, NJ: John Wiley & Sons.
- Griner, D., & Smith, T. B. (2006). Culturally adapted mental health interventions: A meta-analytic review. *Psychotherapy: Theory, Research, Practice, Training*, 43(4), 531-548.
- Horn, I.B., Cora-Bramble, D., Cheng, T.L., Jenkins, R., Pachter, L., & Joseph, J. (2009). Starting early: A life-course perspective on child health disparities research recommendations. *Pediatrics*, 124(3), S257-S261. doi: 10.1521/peds.2009-111000

Islam, N., Riley, L., Wyatt, L., Tandon, S.D., Tanner, M., Mukherji-Ratnam, R.,...Trinh-Shevrin, C. (2014). Protocol for the DREAM Project (diabetes research, education, and action for minorities): A randomized trial of a community health worker intervention to improve diabetic management and control among Bangladeshi adults in NYC. *BioMed Central Public Health*, 14, 1-9.  
doi:10.1186/1471-2458-14-177

Karoly, L. A., Greenwood, P. W., Everingham, S. S., Houbé, J., Kilburn, M. R., Rydell, C. P.,...Chiesa, J. (1998). *Investing in our children*. Santa Monica, CA: RAND.

Kendall, P.C., & Beidas, R.S. (2007). Smoothing the trail for dissemination of evidence-based practices for youth: Flexibility within fidelity. *Professional Psychology: Research and Practice*, 38(1), 13-20. doi: 10.1037/0735-7028.38.1.13

Kids Count Data Center. *Children in Poverty by Race and Ethnicity*. Retrieved from:  
<http://datacenter.kidscount.org/data/tables/44-children-in-poverty-by-race-and-ethnicity#detailed/1/any/false/869,36,868,867,133/10,11,9,12,1,185,13/324,323>

Kumpfer, K.L., Pinyuchon, M., Teixeira de Melo, A., & Whiteside, H.O. (2008). Cultural adaptation process for international dissemination of the strengthening families program. *Evaluation and Health Professions*, 31(2), 226-239.  
doi: 10.1177/0163278708315926

\* Lakes, K. D., Kettler, R. J., Schmidt, J., Haynes, M., Feeney-Kettler, K., Kamptner, L., ... & Tamm, L. (2009). The CUIDAR early intervention parent training program for preschoolers at risk for behavioral disorders: An innovative practice for reducing disparities in access to service. *Journal of early intervention*, 31(2), 167-178. doi: 10.1177/1053815109331861

- \* Lakes, K. D., Vargas, D., Riggs, M., Schmidt, J., & Baird, M. (2011). Parenting intervention to reduce attention and behavior difficulties in preschoolers: A CUIDAR evaluation study. *Journal of child and family studies*, 20(5), 648-659. doi: 10.1007/s10826-010-9440-1
- Lau, A.S. (2006). Making the case for selective and directed cultural adaptations of evidence based treatments: Examples from parent training. *Clinical Psychology: Science and Practice*, 13(4), 295-310. doi: 10.1111/j.1468-2850.2006.00042.x
- Leff, S.S., Costigan, T., Power, T.J. (2004). Using participatory research to develop a playground-based prevention program. *Journal of School Psychology*, 42, 3-21. doi:10.1016/j.jsp.2003.08.005
- Leff, S.S., Thomas, D.E., Vaughn, N.A., Thomas, N.A., MacEvoy, J. P., Freedman, M.A.,...Fein, J.A. (2010). Using community-based participatory research to develop the PARTNERS youth violence prevention program. *Progress in Community Health Partnerships*, 4(3), 207-216. doi: 10.1353/cpr.2010.0005
- Lenhard, W. & Lenhard, A. (2015). *Computation of Effect Sizes*. Retrieved from: [http://www.psychometrica.de/effect\\_size.html](http://www.psychometrica.de/effect_size.html).
- Lewin, A., Hodgkinson, S., Waters, D. M., Prempeh, H. A., Beers, L. S., & Feinberg, M. E. (2015). Strengthening positive coparenting in teen parents: A cultural adaptation of an evidence-based intervention. *The Journal of Primary Prevention*, 36(3), 139-154. doi: 10.1007/s10935-015-0388-1
- Marsiglia, F. F., & Booth, J. M. (2015). Cultural adaptation of interventions in real practice settings. *Research on Social Work Practice*, 25(4), 423-432. doi:10.1177/1049731514535989



- McGuire, T.G., & Miranda, J. (2008). New evidence regarding racial and ethnic disparities in mental health: Policy implications. *Health Affairs*, 27(2), 393-403. doi: 10.1377/hlthaff.27.2.393
- Paul, G.L. (1967). Strategy of outcome research in psychotherapy. *Journal of Consulting Psychology*, 31, 109-118. doi: 10.1037/h0024436
- Perepletchikova, F., Hilt, L. M., Chereji, E., & Kazdin, A. E. (2009). Barriers to implementing treatment integrity procedures: Survey of treatment outcome researchers. *Journal of Consulting and Clinical Psychology*, 77(2), 212. doi: 10.1037/a0015232
- \*Raver, C. C., Jones, S. M., Li-Grining, C., Zhai, F., Metzger, M. W., & Solomon, B. (2009). Targeting children's behavior problems in preschool classrooms: A cluster-randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 77(2), 302. doi: 10.1037/a0015302
- Satcher, D., Fryer Jr, G.E., McCann, J., Troutman, A., Woolf, S.H., & Rust, G. (2005). What if we were equal? A comparison of the black-white mortality gap in 1960 and 2000. *Health Affairs*, 24(2), 459-464. doi: 10.1377/hlthaff.24.2.459
- Satcher, D., & Higginbotham, E.J. (2008). The public health approach to eliminating disparities in public health. *American Journal of Public Health*, 98, 400-403. doi: 10.2105/AJPH.2007.123919
- \* Serna, L., Nielsen, E., Lambros, K., & Forness, S. (2000). Primary prevention with children at risk for emotional or behavioral disorders: Data on a universal intervention for Head Start classrooms. *Behavioral Disorders*, 70-84.

- Sue, D.W. (2001). Multidimensional facets of cultural competence. *The Counseling Psychologist*, 29(6), 790-821. doi: 10.1177/0011000001296002
- United States Census Bureau (2012). *U.S. Census Bureau Projections Show a Slower Growing, Older, More Diverse Nation a Half Century from Now*. Retrieved from <https://www.census.gov/newsroom/releases/archives/population/cb12-243.html>
- U.S. Department of Health and Human Services (2013). *Minority Health*. Retrieved from <http://www.niaid.nih.gov/topics/minorityhealth/pages/disparities.aspx>
- \*Vo, A. K., Sutherland, K. S., & Conroy, M. A. (2012). Best in class: A classroom-based model for ameliorating problem behavior in early childhood settings. *Psychology in the Schools*, 49(5), 402-415. doi: 10.1002/pits.21609
- Wilson, H. (2014). Turning off the school-to-prison pipeline. *Reclaiming Children and Youth*, 23(1), 49-53.
- Wilson, D.B. (n.d.). Practical Meta-Analysis Effect Size Calculator. Retrieved from: [http://www.campbellcollaboration.org/resources/effect\\_size\\_input.php](http://www.campbellcollaboration.org/resources/effect_size_input.php)
- Wingood, G.M., & DiClemente, R.J. (2008). The ADAPT-ITT model: A novel method of adapting evidence-based HIV interventions. *Acquired Immune Deficiency Syndrome*, 47(1), S40-S46. doi: 10.1097/QAI.0b013e3181605df1

# Tables

Table 1  
*Summary of Characteristics of Studies Included in the Meta-Analysis*

<u>Study</u>	<u>Race/ethnicity</u>	<u>Treatment Fidelity</u>	<u>Effect Size</u>
Brotman et al., 2011	39% Black 24% Hispanic/Latino 13% White 12% Asian 12% Other	2	0.56
Lakes et al., 2009	69% Latino 16.6% Black 12.4% White 2% Other	1	0.33
Lakes et al., 2011	58% Mexican American 13% White 12% Black 10% Other Hispanic/Latino 8% Other	1	0.30
Raver et al., 2009	65% Black 28% Hispanic/Latino	2	0.78
Vo et al., 2012	82% Black 12% White 6% Asian/Pacific Islander	3	1.03
*Brotman et al., 2005	61% Black 24% Hispanic/Latino 15% Other	1	0.23
Brotman et al., 2003	67% Black 33% Hispanic/Latino	2	0.78
Serna et al., 2000	71% Hispanic/Latino 11.9% Black 9.5% White 7.1% Native American	2	0.03
Conroy et al., 2014	74% Black 11% White 5% Asian/Pacific Islander	2	1.01

*Note.* All studies provided race/ethnicity information for children except those marked with an asterisk. Effect size information provided in Cohen's *d*. The weighted average was used to calculate Cohen's *d* for studies with multiple relevant outcomes.



Table 2

*Scale Used to Rate Treatment Fidelity for Studies Included in the Meta-Analysis*

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0= no mention or measure of fidelity

1= fidelity mentioned, but not measured quantitatively

2= fidelity mentioned and measured quantitatively

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*Note.* Study receives an additional point (+1) for the inclusion of an operational definition. Range of scores is 0-3.

Table 3  
*Random Effects Model- Regression of Effect Size (Cohen's d) on Cultural Adaptation*

Covariate	Coefficient	Standard Error	95% Lower	95% Upper	Z-value	2-sided p-value
Intercept	0.82	0.33	0.16	1.48	2.45	0.01
Cultural Adaptation	-0.05	0.05	-0.14	0.04	-1.03	0.30

*Note.* Results are not significant.

Table 4

*Random Effects Model - Regression of Effect Size (Cohen's d) on Treatment Fidelity*

Covariate	Coefficient	Standard Error	95%	95%	Z-value	2-sided
			Lower	Upper		p-value
Intercept	-0.02	0.25	-0.51	0.46	-0.1	0.92
Treatment Fidelity	-0.31	0.14	0.03	0.60	2.1	0.03*

Note. \*Results are significant,  $p < .05$ .



## Figures

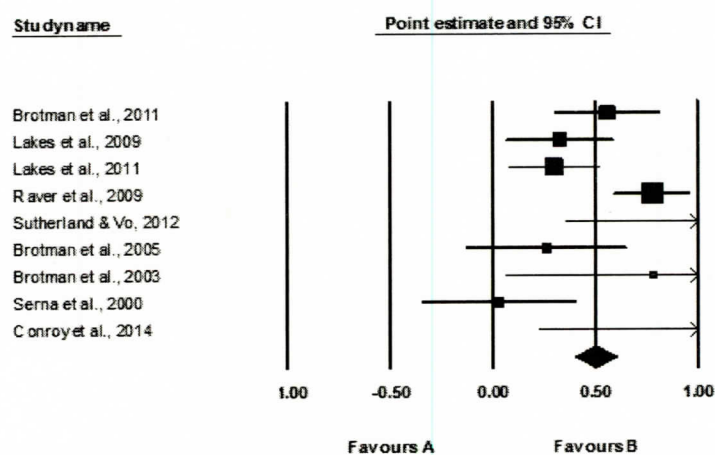
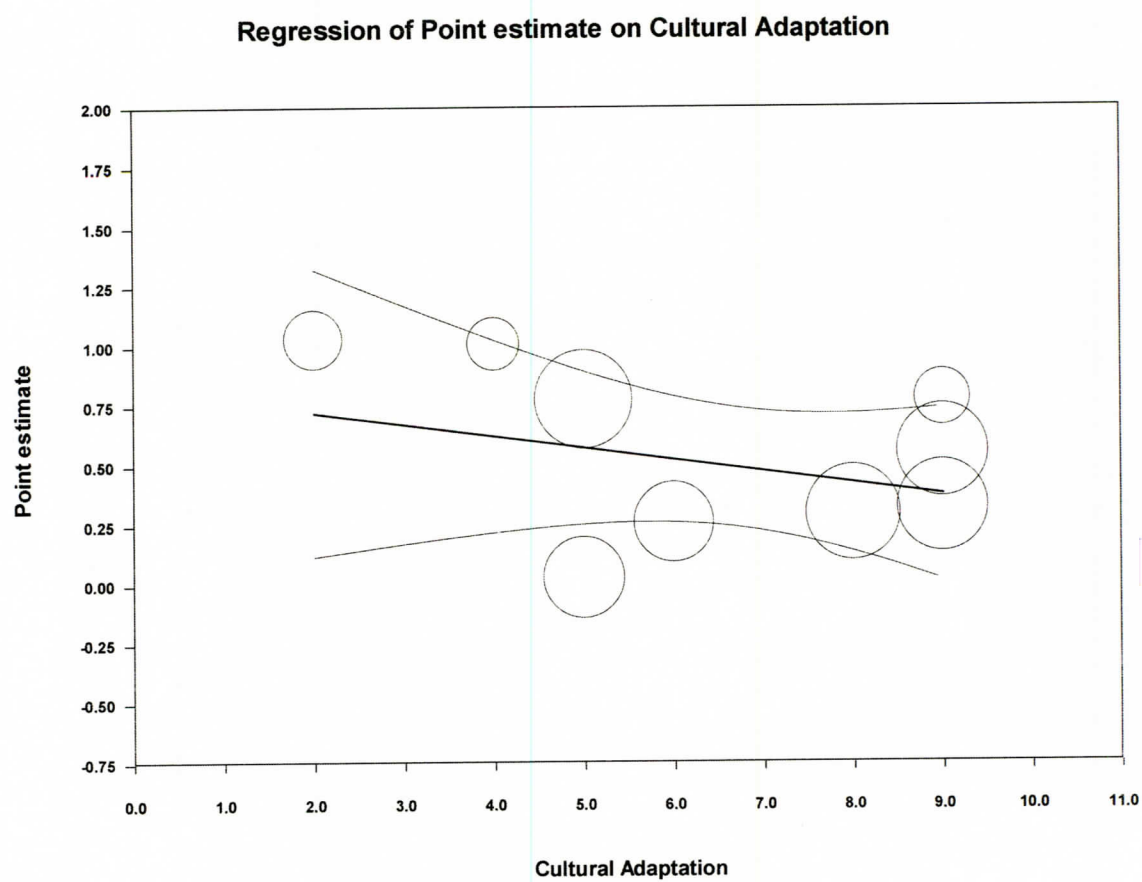
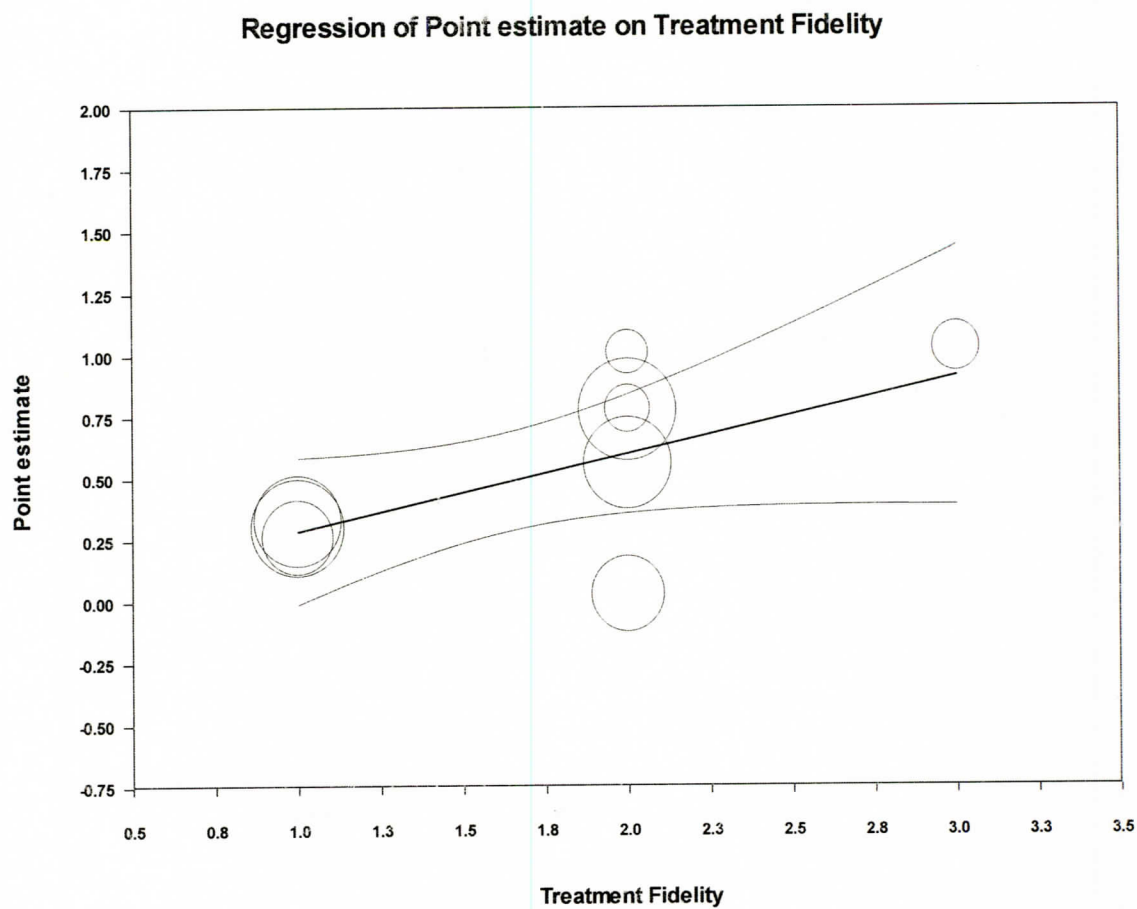


Figure 1. Random effects model for all studies included.



*Figure 2.* Relationship between cultural adaptation and effect size.



*Figure 3.* Relationship between treatment fidelity and effect size.



## Appendices

### Appendix A

#### Cultural Adaptation Checklist

Cultural Adaptation Checklist	Included	
	Yes	No
<b>SURFACE STRUCTURE FEATURES or "presentation strategies." Changes in program activities and materials to address observable or superficial aspects of culture.</b>		
Bilingual Staff		
Translation & back translation of materials/Material reflects target populations language use		
Materials matched to grade or literacy level(s)		
Material depicts individuals from target population		
Material depicts culturally appropriate graphics and scenarios		
Inclusion of elements central to culture		
Inclusion of community organizers, health workers (physical and mental), educators, etc.		
Inclusion of ethnically/ culturally matched facilitators and peer role models		
Intervention delivered in a format preferred by target population (including method of communication)		
Incorporation of culturally appropriate, familiar activities		
<b>STRUCTURAL FEATURES or "logistics." Changes in program logistics to make programs more accessible to the target population.</b>		
Considers target population's employment situations		
Utilizes incentives relevant to the target population		
Addresses physical/financial barriers to participation		
Intervention conducted in a safe location, familiar to participants		
Addresses barriers to participation such as discrimination and mistrust		
<b>DEEP STRUCTURE FEATURES or "content strategies." The integration of culture into program messages and activities.</b>		
Exploratory phase with target population		
Exploratory phase with community leaders		
Incorporation of cultural values in intervention design or implementations		
Ongoing collaboration/feedback sessions with community members		
Materials created or influenced by members of target population		
Intervention considers issues/behaviors unique to the target population's context		
Intervention goals and outcomes are relevant to the target population		
Inclusion of relevant social support networks in the intervention (friends, family, etc.)		
Purposefully maintains an exclusive or open intervention environment as preferred by target population		
Cross-cultural training for all study personnel		
<b>Levels of Adaptation</b>	<b>Features Included</b>	
Surface Structure Adaptation	(0-10)	
Structural Adaptation	(0-5)	
Deep Structure Adaptation	(0-10)	
<b>Quantitative Value</b>	<b>(0-25)</b>	
<b>Qualitative Meaning</b>	<b>Value</b>	
Program is not culturally adapted	0	
Program includes minimal elements of cultural adaptation	(1-3)	
Program is moderately adapted	(4-6)	
Program includes several elements of cultural adaptation	(7-9)	
Program is optimally adapted (and is likely to be embraced/accepted by target population)	(10+)	

*Appendix B*

Explanations/Examples for Each Feature Included in the Checklist

<b>Cultural Adaptation Rating Scales</b>	<b>EXPLANATION/EXAMPLE</b>
<b><u>SURFACE STRUCTURE FEATURES</u> or "presentation strategies"</b>	
Bilingual staff	Program implemented by staff who are fluent in all languages spoken by target population.
Translation & back translation of materials/Material reflects target populations language use	Materials translated into the target population's native language, and then translated back into original language to ensure equivalence of meaning
Materials matched to grade or literacy level	Materials presented at appropriate reading level
Material depicts individuals from target population	Materials include illustrations or photographs of people who have phenotypic similarities to the target population, and also takes into account phenotypic diversity within any particular racial/ethnic group.
Material depicts culturally appropriate graphics and scenarios	Materials depict activities and scenarios which are common or familiar to the target population, but are careful not to reflect stereotypical events that do not represent the target population.
Inclusion of elements central to culture	Themes and traditions relevant to the culture such as foods, music, and dance are incorporated.
Inclusion of community health workers (physical and mental), educators, etc.	Trusted community members are placed in leadership roles.
Inclusion of ethnically/ culturally matched facilitators and peer role models	Ethnically/culturally similar (non-community members) are placed in leadership roles. Similarities based on country of origin, language, self-identification, etc.
Intervention delivered in a format preferred by target population (including method of communication)	Storytelling, poetry, interactive learning, testimonials, etc...
Incorporation of culturally appropriate, familiar activities	Common cultural practices are incorporated into the program,
<b><u>STRUCTURAL FEATURES</u> or "logistics"</b>	
Considers target population's employment situations	Consideration of how being a caretaker, night-shift worker, taxi driver, etc. might impact availability; scheduling meetings to accommodate schedules
Utilizes incentives relevant to the target population	Tokens of appreciation that are useful to members of the target population are provided



Addresses physical/financial barriers to participation	Sessions are held at a location within walking distance to target population; transportation is provided; child-care and full meals are provided during meeting times
Siting the intervention in safe locations familiar to participants	Sessions are held at a location frequently utilized by community members
Addresses barriers to participation such as discrimination and mistrust	Various barriers to participation in order to create a safe, worry-free environment are openly and intentionally discussed.
<b><u>DEEP STRUCTURE FEATURES or "content strategies"</u></b>	
Exploratory phase with target population	Adaptations based on recommendations from community members
Exploratory phase with community leaders	Adaptations based on recommendations from community leaders
Incorporation of cultural values in intervention design or implementations	Adaptations based on prior relevant research and/or focus groups
Ongoing collaboration/feedback sessions with community members	Regular check-ins with community members to discuss program effectiveness with the possibility of making adjustments based on this feedback
Materials created by members of target population/Utilizes resources from target population	Utilizes resources within the community (e.g., materials that have proven to be effective in the past)
Intervention considers issues/behaviors unique to the target population's context	Addresses issues/concerns that are relevant to the target population. (e.g., community violence, domestic abuse, drugs)
Intervention goals and outcomes are relevant to the target population	Program's goals seek to make meaningful differences in the lives of the target population/Goals are identified by target population
Inclusion of relevant social support networks in the intervention, considered relevant for the target goals of the intervention (friends, family, etc.)	Joint or family counseling; family and/or friends are invited to sessions. Consideration should be given to creating a balance between fidelity and adaptation.
Purposefully maintains an exclusive or open intervention environment as preferred by target population	Individual, small group, large group sessions as preferred by target population. Consideration should be given to creating a balance between fidelity and adaptation.
Cross-cultural training for all study personnel	All personnel have been trained appropriately and are able to address all matters in a culturally appropriate manner



### Appendix C

#### Complete List of References for Features Included in the Checklist

- Barrera, M. & Castro, F.G. (2006). A heuristic framework for the cultural adaptation of interventions. *Clinical Psychology: Science and Practice*, 13(4), 311-316. doi: 10.1111/j.1468-2850.2006.00043.x
- Barrera, M., Castro, F.G., Stryker, L.A., & Toobert, D.J. (2013). Cultural adaptations of behavioral health interventions: A progress report. *Journal of Consulting and Clinical Psychology*, 81(2), 196-205. doi: 10.1037/a0027085
- Bernal, G., Jimenez-Chafey, M.I., & Domenech-Rodriguez, M.M. (2009). Cultural adaptation of treatments: A resource for considering culture in evidence-based practice. *Professional Psychology: Research and Practice*, 40(4), 361-368. doi: 10.1037/a0016401
- Borrelli, B. (2010). Smoking cessation: Next steps for special populations research and innovative treatments. *Journal of Consulting and Clinical Psychology*, 78(1), 1-12. doi: 10.1037/a0018327
- Bravo, M., Woodbury-Farina, M., Canino, G.J., & Rubio-Stipec, M. (1993). The Spanish translation and cultural adaptation of the Diagnostic Interview Schedule for Children (DISC) in Puerto Rico. *Culture, Medicine and Psychiatry*, 17, 329-344. doi: 10.1007/BF01380008
- Burlew, K., Lariou, S., Suarez-Morales, L., & Holmes, B. (2011). Increasing ethnic minority participation in substance abuse clinical trials: Lessons learned in the National Institute on Drug Abuse's clinical trial network. *Cultural Diversity and Ethnic Minority Psychology*, (17)4, 345-356. doi: 10.1037/a0025668

- Cardemil, E. (2010). Cultural adaptations to empirically supported treatments: A research agenda. *The Scientific Review of Mental Health Practice*, 7(2), 8-21.
- Castro, F.G., Barrera, M., & Holleran Steiker, L.K. (2010). Issues and challenges in the design of culturally adapted evidence-based interventions. *Annual Review of Clinical Psychology*, 6, 213-239. doi: 10.1146/annurev-clinpsy-033109-132032
- Davidson, E. M., Liu, J.J., Bhopal, R., White, M., Johnson, M.R.D., Netto, G.,... Sheikh, A. (2013). Behavior change interventions to improve the health of racial and ethnic minority populations: A tool kit of adaptation approaches. *The Milbank Quarterly* 91(4), 811-851. doi: 10.1111/1468-0009.12034
- Holleran Steiker, L.K., Castro, F.G., Kumpfer, K., Marsiglia, F.F., Coard, S., & Hopson, L.M. (2008). A dialogue regarding the cultural adaptation of interventions. *Journal of Social Work Practice in the Addictions*, 8(1), 154-162. doi: 10.1080/15332560802112094.
- Hwang, W. (2011). Cultural adaptations: A complex interplay between clinical and cultural issues. *Clinical Psychology: Science and Practice*, 18(3), 238-241. doi: 10.1111/j.1468-2850.2011.01255.x
- Kumpfer, K.L., Pinyuchon, M., Teixeira de Melo, A., & Whiteside, H.O. (2008). Cultural adaptation process for international dissemination of the strengthening families program. *Evaluation and Health Professions*, 31(2), 226-239. doi: 10.1177/0163278708315926

- Lau, A.S. (2006). Making the case for selective and directed cultural adaptations of evidence based treatments: Examples from parent training. *Clinical Psychology: Science and Practice*, 13(4), 295-310. doi: 10.1111/j.1468-2850.2006.00042.x
- Lee, C.S., Lopez, S.R., Hernandez, L., Colby, S.M., Caetano, R., Borrelli, B., & Rohsenow, D. (2011). A cultural adaptation of motivational interviewing to address heavy drinking among Hispanics. *Cultural Diversity and Ethnic Minority Psychology*, 17(3), 317-324. doi: 10.1037/a0024035
- Nicolas, G., Arntz, D.L., Hirsch, B., & Schmiedigen, A. (2009). Cultural adaptation of a group treatment for Haitian American adolescents. *Professional Psychology: Research and Practice*, 40(4), 378-384. doi: 10.1037/a0016307
- Ortega, E., Giannotta, F., Latina, D., & Ciairano, S. (2012). Cultural adaptation of the Strengthening Families Program 10-14 to Italian families. *Child Youth Care Forum*, 41, 197-212. doi: 10.1007/s10566-011-9170-6
- Osuna, D., Barrera, M., Strycker, L., Toobert, D.J., Glasgow, R.E., Geno, C.R.,...Doty, A.T. (2009). Methods for the cultural adaptation of a diabetes lifestyle intervention program for Latinas: An illustrative project. *Health Promotion Practice*, 12(3), 341-348. doi: 10.1177/15248399909343279.
- Pobocik, R.S., Montgomery, D., Gemlo, L.R. (1998). Modification of a school-based nutrition education curriculum to be culturally relevant for Western Pacific Islanders. *Journal of Nutrition Education*, 30(3), 164-169. doi:10.1016/S0022-3182(98)70307-3



- Poulsen, M.N., Vandenhoude, H., Wyckoff, S.C., Obong'o, C.O., Ochura, J., Njika, G.,...Miller, K.S. (2010). Cultural adaptation of a U.S. evidence-based parenting intervention for rural Western Kenya: From Parents Matter! To Families Matter! *AIDS Education and Prevention* 22(4), 273-285. doi: 10.1521/aeap.2010.22.4.273
- Domenech Rodriguez, M.M., Baumann, A.A., & Schwartz, A.L. (2011). Cultural adaptation of an evidence-based intervention: From theory to practice in a Latino/a community context. *American Journal of Community Psychology*, 47, 170-186. doi: 10.1007/s10464-010-9371-4
- Shea, M., Cachelin, F., Uribe, L., Striegel, R.H., Thompson, D., & Wilson, G.T. (2012). Cultural adaptation of a cognitive behavior therapy guided self-help program for Mexican American women with binge eating disorders. *Journal of Counseling and Development*, 90, 308-318. doi: 10.1002/j.1556-6676.2012.00039.x
- Sidani, S., Guruge, S., Miranda, J., Ford-Gilboe, M., & Varcoe, C. (2010). Cultural adaptation and translation of measures: An integrated method. *Research in Nursing and Health*, 33, 133-143. doi: 10.1002/nur.20364
- Van Widenfelt, B.M., Treffers, P.D.A., De Beurs, E., Siebelink, B.M., & Koudijs, E. (2005). Translation and cross-cultural adaptation of assessment instruments used in psychological research with children and families. *Clinical Child and Family Psychology Review*, 8(2), 135-147. doi: 10.1007/s10567-005-4752-1

Wild, D., Grove, A., Martin, M., Eremence, S., McElroy, S., Verjee-Lorenz, A., & Erikson, P. (2005). Principles of good practice for the translation and cultural adaptation process for Patient-Reported Outcomes (PRO) measures: Report of the ISPOR task force for translation and cultural adaptation. *Value in Health*, 8(2), 94-104. doi: 10.1111/j.1524-4733.2005.04054.x

### **Biography**

Veronica Coriano was born in Chicago, Illinois. She received her Bachelor of Arts at Elmhurst College in Elmhurst, Illinois in 2011. She is currently a graduate student at Tulane University where she conducts research in Dr. Courtney Baker's lab. Her research interests are focused on promoting mental health and academic success in Black and Latino children.