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Parental and youth attributions, Acculturation, and treatment Engagement of Latino  
families in youth mental health services: A preliminary examination

A Dissertation submitted in partial satisfaction of the requirement for the degree

Doctor of Philosophy

in

Clinical Psychology

by

Judy Keeching Ho

Committee in charge:

University of California, San Diego

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Professor Scott Roesch

2007

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The Dissertation of Judy Keeching Ho is approved, and it is acceptable in quality  
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Chair

University of California, San Diego

San Diego State University

2007

## DEDICATION

This dissertation is dedicated to my parents, Robert and Renee Ho, without whom  
would have never had the opportunity to pursue my doctoral degree.

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## LIST OF ABBREVIATIONS

1. MH = Mental Health
2. NHW = Non-Hispanic White
3. AA = African American
4. LA = Latinos
5. API = Asian/Pacific Islander
6. AI = American Indian
7. AN = Alaskan Natives
8. HLOC = Health Locus of Control
9. LOC = Locus of Control
10. ACA = American Cultural Affiliation
11. TCA = Traditional Cultural Affiliation

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I would also like to acknowledge Professor Roesch for his support as the guiding statistician for this research study, who despite his busy schedule went above and beyond his call of duty in the data analyses phase.

I would also like to acknowledge Professors Price, Wall, and Garland, who are extremely wonderful committee members. They have been instrumental in the guidance of my dissertation development, and I sincerely appreciate their flexibility with the revisions along the way.

I would also like to acknowledge Bill Ganger, who set up the TWIST database and coded many key variables in a hurry so that I could meet my dissertation submission timeline. He also taught me many new things about writing syntax for scoring measures and mean substitution protocols, which were great lessons to learn.

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University of California, San Diego, Child and Adolescent Psychiatric Services  
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Provide individual therapy, family therapy, treatment development, and discharge planning to youth ages 5-18 in the inpatient milieu. Conduct intake and extended assessments of children and adolescents with a broad spectrum of Axis I and II disorders in the inpatient milieu. Administer psychoeducational and psychodiagnostic assessments to aid treatment planning, disposition, and referral. Present cases in individual and group supervisions for discussion, consultation, and education.

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ABSTRACT OF THE DISSERTATION

Parental and youth attributions, Acculturation, and treatment Engagement of Latino families in youth mental health services: A preliminary examination

by

Judy Keeching Ho

Doctor of Philosophy in Clinical Psychology

University of California, San Diego, 2007

San Diego State University, 2007

Professor May Yeh, Chair

Latino youth have higher rates of unmet mental health needs and Latino families experience poorer treatment retention in youth mental health services than Non-

Hispanic Whites. Current research suggests that psychosocial factors such as health locus of control (HLOC) or Acculturation are related to physical health prevention and health promotion behaviors. However, no studies to date have examined whether these factors play a role in youth' and parents' participation (i.e., Engagement) in youth mental health services. The current proposal aims to elucidate the relationships between HLOC, Acculturation, and Engagement in youth mental health treatment for a Latino parent ( $n = 80$ ) and a Latino youth ( $n = 77$ ) sample, taken from the NIMH-funded TWIST study. Pearson correlation analyses were conducted to examine associations between Acculturation and HLOC, and regression analyses were conducted to examine whether Acculturation and HLOC predict Engagement in youth mental health treatment. Consistent with existing theories, results show a significantly positive correlation between youth American Cultural Affinity (ACA) and Internal HLOC, and a significantly negative correlation between parental ACA and Internal HLOC. Contrary to our hypotheses, Acculturation and HLOC did not predict Engagement in either adult or youth sample. Given the limited sample size, this study should be viewed as utilizing a pilot sample of the larger TWIST investigation. As such, projections of sample sizes needed to detect effects are considered and discussed. The current study marks the initiation of a program of research with the long-term objective of examining the relationship between Acculturation, HLOC, Engagement, and outcomes for African American, Latino, Asian/Pacific Islander, and non-Hispanic White youth.

## INTRODUCTION

Latinos continue to be the largest and fastest growing minority youth group in the United States (U. S. Census Bureau, 2006), and evidence suggests alarmingly high unmet mental health needs<sup>1</sup> in this population (Kataoka et al., 2002; Yeh et al., 2003). Latino children were found to have significantly higher rates of unmet need (47.2%) compared to non-Hispanic White children (30.7%) in an at-risk sample (Yeh et al., 2003), and these differences were significant even when socioeconomic status was taken into account. Another study found that 88% of Latino youth who were in need of mental health services did not receive them, compared to a rate of 75% for all U. S. youth, and that Latino youth had higher unmet needs than non-Hispanic White youth even when socioeconomic and insurance status were accounted in analyses (Kataoka et al., 2002). Thus, evidence suggests that Latino youth may encounter a greater number of barriers in mental health service entry than non-Hispanic White youth. These findings are troublesome given that Latino youth have shown similar community rates of many mental health problems compared to non-Hispanic White youth (USDHHS, 2001), and have higher rates of depressive and anxious symptomatology and higher rates of suicidal thoughts compared to non-Hispanic White youth (Centers for Disease Control and Prevention, 2000).

## TREATMENT RETENTION AND ENGAGEMENT

Beyond disparities and barriers to service entry, there is evidence that Latino families in youth mental health services may experience poorer treatment retention<sup>2</sup>

than non-Hispanic White families even when they decide to utilize services (Morrissey-Kane and Prinz, 1999; McCabe, 2002; Kazdin, Stolar, and Marciano, 1995). Studies of Latino adult and youth suggest that Latinos are more likely to prematurely terminate mental health treatment than NHW; up to 65-70% drop out of services after one session (McCabe, 2002; Huey, 1998; Sue, 1977). Clients who drop out of services or terminate treatment early are not likely to receive the maximum benefits treatment offers, and may continue to experience significant levels of impairment (Kazdin, Holland, and Crowley, 1994; Larsen, Nguyen, Green, and Attkisson, 1983). Thus, patterns of poor treatment retention may contribute further to the already high rates of unmet mental health needs in Latino youth.

It has been hypothesized that Latino families are more likely to have poorer treatment retention compared to non-Hispanic White families because they are more likely to subscribe to cultural values, beliefs, attitudes, and behaviors that may be incompatible with Western conceptualizations of mental health treatment (USDHHS, 2001). For example, McCabe (2002) found that Mexican American families were more likely than non-Hispanic White families to hold negative attitudes toward westernized mental health treatment, and that these attitudes predicted higher rates of dropout for Mexican Americans. Further, a primary reason cited for the high premature termination rate in mental health treatment for Latino populations is that traditional treatments have failed to consider cultural and linguistic differences unique to this group (Santiago-Rivera, 2006). For example, Spanish-speaking groups and Mexican-Americans less acculturated to the U. S. are more likely to express and

perceive mental health symptomatology as physical ailments, which may lead to misunderstandings in the mental health assessment and treatment process (Edgerton & Karno, 1977; Well, Hough, Golding, Burnam, & Karno, 1987). Also, family and religion served as important sources of treatment for Spanish-speaking individuals compared to English-speaking individuals (Edgerton & Karno, 1977). Cultural incompatibilities may lead minority individuals to have poorer Engagement<sup>3</sup>, a concept that is likely to be directly related to treatment retention rates. The importance of Engagement to treatment retention for youth mental health services is demonstrated by studies that show increase in service use, treatment retention, and adherence to treatment recommendations when Engagement interventions<sup>4</sup> are implemented during initial contacts with youth and parents (McKay et al., 2004; McKay et al., 1996). Unfortunately, studies have shown that minorities are particularly difficult to engage in mental health treatment, evidenced by higher attrition rates of minority families in mental health services compared to Whites (Morrissey-Kane and Prinz, 1999; Kazdin, Stolar, and Marciano, 1995).

Because parents are gatekeepers to youth mental health care (McMiller & Weisz, 1996) and are often the primary decision-makers regarding when to pursue and terminate treatment (Pekarik & Stephenson, 1988), the Engagement of the parent is likely to be as important as (or even more important than) the Engagement of the youth in treatment retention and intervention success. Indeed, recent trends have shifted toward interventions that target parents as change agents in youth treatment (Rodrique, 1994) such as behavioral management therapies, and evidence suggests

that including parents in the youth treatment process improves treatment effectiveness for both externalizing and internalizing disorders (Page, Poertner, & Lindbloom, 1995; Clark et al., 1992). Therefore, there is a great need to examine factors associated with both parent and youth Engagement in therapy to boost treatment retention and increase beneficial treatment outcomes (Miranda, 2005).

### HEALTH LOCUS OF CONTROL (HLOC)

Current research suggests that psychosocial factors such as health locus of control (Lau, 1982; Kirscht & Rosenstock, 1977) or Acculturation (Andersen, Lewis, Giachello, Aday, & Chiu, 1981) are related to health prevention and health promotion behaviors. Health locus of control (HLOC) beliefs have been shown to impact health outcomes, and specifically, it has been shown to be influential in the development of health behaviors and treatment compliance (Wallston et al., 1978; Murphy, Thompson, & Morris, 1997). Derived from Rotter's (1966) social learning theory, HLOC measures the persons' beliefs regarding the source of reinforcement for control that they have over the status of their own health (Strickland, 1989). Originally, this construct was viewed as unidimensional, whereby internal locus of control is the expectation that reinforcement is the result of one's own effort, ability, or characteristics, and external locus of control is the expectation that reinforcement is the result of chance, fate, luck, or Powerful Others (Turner, Sizer, Whitney, & Wilks, 1992). Wallston, Wallston, and DeVellis (1978) demonstrated that HLOC was better conceptualized as multidimensional, consisting of three largely independent

subconstructs: a) Internal HLOC: the extent to which individuals believe that they control their own health outcomes, b) Powerful Others HLOC: extent to which individuals believe that other important people (e.g., doctors, nurses) control their health outcomes, and c) Chance HLOC: the extent to which individuals believe that fate, luck, or chance events control their health outcomes. Those with Internal HLOC are likely to perceive that their actions have a significant impact on their health, and those with Powerful Others and Chance HLOC are likely to believe that their efforts have nothing or little to do with prevention or recovery (Guinn, 1998). Indeed, existing adult literature shows that Internal HLOC is positively associated with health behaviors and better health (Raja, Williams, & McGee, 1994; Waller & Bates, 1992; Bennett, Moore, Smith, & Murphy, 1994), and Powerful Others and Chance loci of control is associated with negative health behaviors (Vandervort, Luuis, & Hamilton, 1997) and poor psychological adjustment (Benassi, Sweeney, & Dufour, 1988).

To date, research on the role of HLOC beliefs in health behaviors and outcomes for youth have been limited; furthermore, very few studies have measured this construct using a multidimensional measure. One study found that adolescents who endorsed Internal HLOC beliefs were more likely to engage in positive health behaviors such as compliance with physical health treatment recommendations and to refuse to engage in negative health behaviors such as missing physician checkup/appointments. Furthermore, adolescents who endorsed Powerful Others HLOC beliefs were more likely to refuse to engage in negative health behaviors, and those who endorsed Chance HLOC beliefs were less likely to take an active role in

physical health improvement, less likely to engage in positive health behaviors, more likely to engage in avoidance behaviors, and more likely to be smokers (Eiser, Eiser, Gammage, & Morgan, 1989). No studies to date have examined the role of HLOC beliefs in mental health behaviors and outcomes for adults or youth.

Few studies have examined racial/ethnic differences in HLOC, and existing evidence suggests that Latinos differ from non-Hispanic Whites with regard to this construct. In adults, ethnic minorities endorse more external (Chance and Powerful Others) HLOC beliefs than do Caucasian Americans (Galanos, Strauss, & Pieper, 1994; Spalding, 1995). Only two studies to date have examined multidimensional HLOC in diverse youth, and results show that Caucasian American children endorsed more Internal HLOC beliefs than Hispanic American children (Parcel & Meyer, 1978), and Latino children endorsed more Chance HLOC beliefs than did Caucasian American children (Malcarne, Drahota, & Hamilton, 2005). This suggests that Latino children, like their adult counterparts, are more likely to attribute their health status and outcomes to fate, luck, or Chance events than Caucasian children, and less likely to believe that their behaviors have a definite impact on their health. These findings are important given that the endorsement of external HLOC beliefs, and specifically, Chance HLOC beliefs, have been associated with poorer health practices and negative health behaviors.

It is possible that these relationships between ethnicity, locus of control (LOC), and health behaviors also relate to mental health related behaviors. Morrissey-Kane and Prinz (1999) identified parental LOC as an important factor to Engagement in mental

health treatment. Parental LOC regarding youths' mental health involves beliefs about parental competence and skill in managing child behavior (Bugental, Blue, & Cruzcosa, 1989). Parental LOC may significantly influence parental affect and behavioral actions, and has been suggested as a critical variable in determining parental motivation and Engagement in youth mental health treatment. Parents who have an internal LOC believe that their child's behavior and development is derived from their own parenting practices (Campis et al., 1986) and thus feel more confident about their skills in managing youth behavior. Parents who have an external LOC believe their child's behavior and development are determined by factors outside parental control (e.g., by chance, other people, or dispositional qualities of the child). Parents with external LOC may believe that they cannot be an effective part of the solution, thus limiting parental motivation and Engagement in therapy (Morrissey-Kane & Prinz, 1999). In addition to affecting parental Engagement, adopting an internal LOC may be important to youth outcomes; families who had successful outcomes in treating their oppositional child also successfully shifted their attributions from an external parent LOC to an internal LOC (Morrissey-Kane & Prinz, 1999). Despite recent hypotheses and preliminary evidence about the role of parental LOC in the promotion and care of children's mental health, these relationships have not been well examined. Further, no studies to date have considered the impact of youths' health LOC on youths' own Engagement in treatment.

## ACCULTURATION

Acculturation is another psychosocial variable that may be related to health promotion and health behaviors, and has been introduced as a way to measure how individuals subscribe and adhere to cultural attitudes, beliefs, and values. Acculturation is defined as the "...process whereby the attitudes and/or behaviors of persons from one culture are modified as a result of contact with a different culture" (Moyerman and Forman, 1992). Thus, originally, Acculturation was viewed as a single continuum ranging from exclusive involvement in one's indigenous culture to exclusive involvement in American culture, and individuals adopting host-culture attitudes, behaviors, and values simultaneously abandon these same attributes that correspond to their culture of origin. This model have been criticized on the basis that measures based on unidimensional models are limited in their ability to assess biculturation, defined as the attainment of high adherence to both native and host cultures (Ramirez, 1994). More recent models take into account the choice individuals have in the acculturative process and view Acculturation as an interaction between at least two cultures simultaneously (Mendoza, 1989). In this view, Acculturation involves two independent dimensions, for which participation in one's indigenous culture is distinguished from participation in the host American culture (Berry, 2002). In the bi-dimensional model, Acculturation may be applicable to not only immigrant, but also non-immigrant populations as well (Landrine & Klonoff, 1996). There is emerging consensus on the superiority of the bidimensional model over the traditional unidimensional model (Cortes et al., 1994; Cuellar, Arnold, & Malnado, 1995; Kim and Abreu, 2001; Chung, Kim, & Abreu, 2004).

Various studies have suggested that there are important relationships between Acculturation and mental health attitudes/utilization of services for Latino adults and children (USDHHS, 2001). Latinos who are less acculturated to Western cultures tend to have less favorable attitudes toward U. S. mental health services (Atkinson and Gim, 1992; Atkinson et al., 1984; Dadfar and Friedlander, 1982; Kung, 2003; Ying and Miller, 1992; Zhang and Dixon, 2003). Parents' high affinity to their culture of origin was related to lower specialty mental health service use by Latino youth (Ho, Yeh, McCabe, & Hough, 2006), suggesting that parental Acculturation may play a key role in youth service use. Although literature examining the relationship between Acculturation and the treatment process itself is greatly lacking, one may hypothesize that Acculturation may affect Engagement in services for Latinos. Mental healthcare in the U. S. is rooted in Western science and medicine (USDHHS, 2001). Latinos who are less acculturated to mainstream American culture may be less familiar with Westernized conceptions of mental health illnesses and Westernized forms of psychological treatment (citation, USDHHS, 2001). Concurrently, they may also have their own attributions and beliefs about the causes of their child's problems that are incompatible with the therapist's formulation (Yeh et al., 2004). These beliefs may affect the success of service delivery and treatment process for Latino families who are less acculturated to mainstream American culture. Also, an adaptive stance that has evolved among Mexican Americans in the U. S. is biculturalism, which describes individuals who have accommodated the mainstream American culture while maintaining their attachment to the culture of origin (Szapocznik & Kurtines, 1993).

Recently, more interest has developed in examining how this acculturation style is related to mental health care and outcomes (Guinn, 1998), as literature has supported biculturalism as an independent, measurable category of acculturation (Berry, 1998) and researchers have started to examine the relationship of biculturalism to mental health adjustment (Lau et al., 2006) and health LOC (Guinn, 1998) in Mexican adolescents. However, no studies to date have examined whether affiliation with American culture, affiliation with traditional culture, or bicultural affiliation are related to Engagement in mental health treatment.

#### PURPOSES OF PRESENT INVESTIGATION

Although both HLOC and Acculturation have been implicated in health promotion and health outcomes, very little is known about the relationships of these variables to each other. Only one study to date has examined the associations between Acculturation and HLOC for Latinos (Malcarne, Drahota, & Hamilton, 2005). This study demonstrated a positive relationship between the endorsement of Internal HLOC and the endorsement of Americanism (high Acculturation to mainstream culture) and biculturalism, and a positive relationship between the endorsement of Powerful Others HLOC and the endorsement of Mexicanism (high Acculturation to culture of origin) in Mexican American youth. Studies are greatly lacking in this area for both Latino adults and youth, and further examination is warranted to elucidate the relationships between these variables.

In sum, Latino adults and youth are the fastest growing cultural group in the United States, and this population evidences higher unmet mental health needs than non-Hispanic Whites. Thus, mental health research with Latinos is urgently needed. Evidence suggests that Latinos may be particularly difficult to engage in mental health treatment, and they are also likely to have poorer treatment retention, further impeding the delivery of beneficial services to this population. To address these issues, some researchers have identified psychosocial variables that may significantly impact health and mental health behaviors. Parental and youth HLOC has been shown to be important to health promotion and health behaviors, but no studies to date have specifically examined the relationship between HLOC and mental health related behaviors for Latinos. Acculturation differences may also significantly impact adherence to westernized mental health treatment, but these relationships have not been well examined for Latinos. Further, only one study has examined the relationship between HLOC and Acculturation for Latinos. Understanding these interrelations may be helpful for identifying points of intervention to increase positive mental health behaviors, treatment retention, and treatment adherence/compliance. In this investigation, I hope to elucidate the relationships between locus of control, Acculturation, and Engagement in youth mental health treatment by examining these variables in a Latino youth and parent sample of youth receiving outpatient mental health services.

As a first step toward obtaining a deeper understanding of the relationships between these sociocultural variables, and given the urgent need for research that aims

to improve the mental health treatment process for Latino families, a preliminary analysis was conducted on small samples of Latino youth and their primary caregivers in the present investigation. The present pilot study allows an examination of the roles of hypothesized variables in treatment Engagement, and the results may communicate the potential importance of these variables, or suggest the examination of other alternate variables in understanding the Engagement process. The objectives of this pilot study were: a) To examine the relationships between health locus of control, Acculturation, and Engagement in a smaller sample, b) to estimate the effect sizes of hypothesized relationships, and c) to estimate the probability of detecting these effects in the full sample, and d) to obtain information that may be helpful in the planning and analysis of the full sample.

## RESEARCH AIMS AND HYPOTHESES

The aims and hypotheses of this investigation are as follows:

Aim 1: Examine associations between Acculturation and HLOC dimensions of youth's emotional/behavioral problems for Latino youth and their parents. Specific hypotheses are as follows: 1a. American Cultural Affinity (ACA) endorsement will be positively associated with Internal HLOC, 1b. Traditional Cultural Affinity (TCA) endorsement will be positively associated with Powerful Others HLOC and Chance HLOC beliefs.

Aim 2: Examine HLOC dimensions as predictors of parental and youth Engagement in youth mental health services. Specific hypotheses are as follows:

- 2a. Internal HLOC will predict better Engagement in therapy,
- 2b. Chance HLOC will predict poorer Engagement in therapy.

Aim 3: Examine Acculturation dimensions as predictors of parental and youth Engagement in youth mental health services. Specific hypotheses are as follows:

- 3a. American Cultural Affinity (ACA) endorsement will predict better Engagement in therapy,
- 3b. Traditional Cultural Affinity (TCA) endorsement will predict poorer Engagement in therapy.
- 3c. Biculturalism may demonstrate a relationship with Engagement in therapy.

## RESEARCH DESIGN AND METHODS

Existing data was taken from a large survey study, entitled, “Cognitive Consensus in Cross-Cultural Competence” (NIMH R01 MH071483, May Yeh, P. I.), which is known in the community as “TWIST” (TeamWork in Services for Teens). This NIMH-funded project takes the innovative approach of examining tenets of “cognitive consensus” theory from the industrial/organizational literature on team functioning as they relate to clinical teamwork in mental health treatment for youth. The study is designed as a prospective, longitudinal study of a cohort of approximately 325 adolescents ( $n = 65$  African American (AA),  $n = 65$  Asian/Pacific Islander (API),  $n = 65$  non-Hispanic White (NHW), and  $n = 130$  Latino (LA)) age 12 and older from the San Diego City Schools (SDCS) district who are receiving school-based or outpatient mental health services. Youth were recruited for involvement in the study if they met the following criteria: 1) referred for outpatient school-based psychotherapy services at SDCS, 2) aged 12 or older, 3) therapists responsible for care have agreed to take part in the study (with an estimated 85% of therapists likely to participate based on our past experience), 4) youth speaks English or Spanish. Parents of youth will be included in the study if they speak English or Spanish. Youth and their parents were eligible for the study upon referral to outpatient psychotherapy at SDCS, therapist agreement to participate, parental consent, and adolescent assent. Youth/parents were excluded if mental retardation, severe brain injury, pervasive developmental disorder, or sensory impairment was evident through school records or self-report, as the measures employed in this study may not be appropriate for such population.

Participants in the present samples were all Latino youth and primary caregiver respondents (hereafter referred to as parents) whose data for all study variables from baseline and 2 month follow-up have been collected to date. This resulted in a sample of 80 parents for baseline data (and 43 parents to date with follow-up data), and a sample of 77 youth for baseline data (and 34 youth to date with follow-up data). Descriptives described below relate to the baseline subsamples. Cultural breakdown for parents was as follows: 71 Mexican or Chicano/a, 4 Central American, 3 South American, and 2 other Hispanic/Latino/a. Parents were primarily female (90.1%); 69 respondents were mothers, 8 were fathers, and 3 were grandmothers. Most parents in this sample (82.5%) reported education levels below high school graduate or equivalent, and the median household income was approximately \$14,000 a year. Most parents in this sample were immigrants (90%), and years parents lived in the U. S. ranged from 2-40 with a median of 18 years, with a mean of 19.51 years,  $SD = 9.17$ ). Linguistic status was as follows: 90.3% of parents were bilingual English-Spanish speaking, and 82.5% of parent interviews were conducted in Spanish. Youth sample ranged from 12-17 years old, mean age of youth at baseline interview was 13.57 years ( $SD = 1.34$ ), and there were slightly more males (54.5% male). Cultural breakdown for youth was as follows: 73 Mexican or Chicano/a, 4 other Hispanic/Latino/a. 17 youth were immigrants (22%), and years youth lived in the U. S. ranged from 3-15 years, with a mean of 13.67 years ( $SD = 8.78$ ). Linguistic status was

as follows: 88.3% of youth were bilingual English-Spanish speaking, and 7.8% of the youth interviews were conducted in Spanish.

As data collection is currently ongoing, this subsample should be considered as a preliminary/pilot sample of all Latino youth and parents to be collected for the larger TWIST project. We are projecting that upon completion of all data collection for TWIST, the Latino parent and youth sample will be approximately  $n = 130$  (Latino parents) and  $n = 130$  (Latino youth)

The current therapist sample for the larger TWIST project consists of clinicians providing school-based outpatient psychotherapy in the San Diego City Schools (SDCS). (Expansion to clinic-based services is planned for implementation during summer 2007. The current analyses include only school-based services.) Current therapist data is as follows: 87.5% were female, 83.6% were Marriage Family Therapists, counselors, or psychologists, and 6.7% were social workers. Primary theoretical orientations included Family Systems, Eclectic, Cognitive-Behavioral, Behavioral, and Other (4%).

#### DATA COLLECTION PROCEDURES

Data collection began in March 2006, with baseline interviews conducted in person at the participant's school, home, or at an additional location convenient to the participant. Following parental verbal assent to participate, baseline interviews with parent, youth, and therapist were scheduled as soon as possible, approximately within a week following the first treatment session. Following the baseline interview, parents

and adolescents are interviewed by telephone or in person at 2, 4, 6, and 12 months post-baseline. Therapists are also interviewed by telephone or in person at 2, 4, 6, and 12 months post-baseline regarding each adolescent participant for whom he or she is providing services. Therapist follow-up interviews are discontinued once the youth is no longer receiving services.

## MEASURES

All parent and youth measures of the study were available in English and Spanish. Several of the measures had excellent Spanish translations readily available. When translations were not available, two experienced Spanish-English translators from previous Child and Adolescent Services Research Center (CASRC) studies provided translational services. In addition, back-translation methods and small focus groups were used to ensure equivalence between the Spanish and English versions.

Youth HLOC: Children's Health Locus of Control Scale (Parcel & Meyer, 1978). Youth's HLOC was assessed at adolescent baseline interview. The Children's HLOC Scale is a structured questionnaire which consists of 20 questions assessing belief about health outcomes. Belief statements were posed in either a positive or negative direction, and respondents were asked to report their belief by indicating "agree," "disagree," or "no opinion." Scoring procedures allowed 1 point for each response in agreement with a positive statement or in disagreement with a negative statement, and no points were awarded for each disagreement response with a positive statement or agreement with a negative statement. If the response was no opinion, no

points were awarded for the statement, whether positive or negative. Three subscales have been developed as follows (Tinsley and Holtgrave, 1989): a) Internal HLOC relates to the idea that one can significantly affect his or her health, b) Powerful Others HLOC relates to the belief that health can be controlled only by one who is more powerful or knowledgeable, and c) Chance HLOC relates to the beliefs that one is helpless because good or bad health is due to uncontrollable factors. Seven statements pertained to Internal HLOC (range 0-7), eight pertained to Powerful Others HLOC (range 0-8), and five pertained to Chance HLOC (range 0-5), with a higher subscale score indicating greater control belief. This scale has been empirically validated and reconfirmed using factor analysis, and authors reported overall Kuder-Richardson coefficients of .72 to .75 for this scale, and test-retest reliability coefficients over a 4-year period of .65 to .72 in a community sample of urban black students in grades 4-9 (O'Brien, Bush, & Parcel, 1989). Parcel and Meyer (1978) reported a Spearman  $r$  of .50 ( $p < .01$ ) between the CHLC and the Nowicki-Strickland Children's Locus of Control Scale in a community sample of children ages 7-12 (Nowicki & Strickland, 1973). Guinn used this scale in a study with a community sample of Mexican American youth ages 14-18 and reported alpha reliabilities of 0.76 (Internal), 0.72 (Powerful Others), and 0.80 (Chance), suggesting appropriateness for cross-cultural data interpretation of Latino youth samples. In the current investigation, alpha reliabilities are 0.54 (Internal), 0.63 (Powerful Others), and 0.58 (Chance), which suggest these HLOC dimensions achieved somewhat adequate internal consistency in our youth sample.

Parent HLOC: Parental Health Locus of Control Scale (Parcel & Meyer, 1978).

Parent HLOC about their child's emotional/behavioral problems was assessed at parent baseline interview. The Parental HLOC Scale was modified based on the Children's HLOC Scale (Tinsely & Holtgrave, 1989) and consists of 20 questions assessing belief about health outcomes. Belief statements were posed in either a positive or negative direction, and respondents were asked to report their belief by indicating "agree," "disagree," or "no opinion." Scoring procedures allowed 1 point for each response in agreement with a positive statement or in disagreement with a negative statement, and no points were awarded for each disagreement response with a positive statement or agreement with a negative statement. If the response was no opinion, no points were awarded for the statement, whether positive or negative. Three subscales have been developed as follows (Tinsley and Holtgrave, 1989): a) Internal HLOC relates to the idea that one can significantly affect his or her health, b) Powerful Others HLOC relates to the belief that health can be controlled only by one who is more powerful or knowledgeable, and c) Chance HLOC relates to the beliefs that one is helpless because good or bad health is due to uncontrollable factors. Seven statements pertained to Internal Control (range 0-7), eight pertained to Powerful Others (range 0-8), and five pertained to Chance (range 0-5), with a higher subscale score indicating greater control belief. This measure has demonstrated good test-retest reliability in a sample of low and middle income African American and Caucasian mothers ranging from 14-39 years (0.96 across all items, range 0.83-1.00; Tinsley & Holtgrave, 1989). In the current sample, alpha reliabilities are 0.42 (Internal), 0.69

(Powerful Others), and 0.65 (Chance), which suggest adequate reliabilities for the two external scales, but raises some questions about the internal consistency of the internal scale.

Parent and Youth Engagement: Engagement Measure (Hall, Meaden, Smith, & Jones, 2001). Parental and youth Engagement were assessed at the first follow-up interview, and will be assessed at each follow-up interview thereafter by therapist report using The Engagement Measure. This scale consists of 11 questions on a 5-point response scale which evaluates 6 areas of Engagement in therapy: appointment keeping, client-therapist interaction, communication/openness, client's perceived usefulness of treatment, collaboration with treatment, and compliance with medication (if applicable). This scale provides a total Engagement score (11-55). This measure has demonstrated good internal reliability ( $\alpha = 0.89$ ), test-retest reliability (0.90 total score correlation, range 0.71-0.84), inter-rater reliability (0.95 total score correlation, range 0.85-1.00), and good face and discriminatory validity in a sample of mental health professionals working in psychiatric settings (Hall, Meaden, Smith, & Jones, 2001). In the current investigation, this measure has demonstrated good internal consistency for both therapist report of parents' engagement ( $\alpha = 0.89$  excluding the medication compliance question which was not applicable for a large proportion of our sample) and youth' engagement ( $\alpha = 0.85$  excluding the medication compliance question which was not applicable for a large proportion of our sample). This measure was administered twice at each follow-up interview, once for therapist report of parent Engagement, and once for therapist report of youth Engagement.

Therapists were asked to complete follow-up interviews at 2, 4, 6, and 12 months after baseline or until they completed an interview at which previous service termination was indicated. For the purposes of this study, Engagement reported at the first follow-up point (2-month post baseline) was used in analyses.

Parent and Youth Acculturation: Pan Acculturation Scale (PAN; Soriano and Hough, 2000). Parents and adolescents completed the PAN at baseline interview. The construction of the PAN is based on a bidimensional model of Acculturation reflecting both affiliation with the mainstream American culture and one's traditional native culture. The scale allows respondents to first indicate any cultural group (e.g., minority racial/ethnic group) to which they belong. Then, respondents were presented with 22 items that span across six subject domains represented in other Acculturation measures (i.e. language, identity, social support, cultural practices, generational status and background, and cultural values and beliefs), and are similar in content to those of previous Acculturation measures (Burnes et al., 1987; Cuellar et al., 1980). For each of these items, respondents were asked to indicate whether their preferences reflect an affinity with American Culture, an affinity with the indigenous culture that they named, an affinity with both cultures, or an affinity to neither culture. The PAN yields two subscales: American Culture Affinity (ACA) and Traditional Cultural Affinity (TCA). This measure has demonstrated good internal reliability (alpha = 0.93 ACA, alpha = 0.87 TCA), good convergent validity with the Short Acculturation Scale, a 12-item measure that assesses degree of acculturation to American culture (Marin, Sabogal, VanOss Marin, Otero-Sabogal, & Perez-Stable, 1987), good criterion validity

in relation to acculturation proxies such as country of birth and language preference, and discriminant validity with a diverse Latina women sample who were receiving health services (Ho, Soriano, Yeh, McCabe, & Hough, in preparation). This measure has also demonstrated good internal reliability (alpha = 0.97 ACA, alpha = 0.94 TCA), good criterion validity with acculturation proxies such as country of birth and language preference, and good discriminant validity with a sample of ethnically diverse youth (including a substantial proportion of Latinos) in public sectors of care (Ho, Yeh, McCabe, & Hough, 2006). Further, this measure has also demonstrated good internal reliability (alpha = 0.95 ACA, alpha = 0.96 TCA), good criterion validity with acculturation proxies such as country of birth and language preference, and discriminatory validity with a diverse parent sample which included a substantial proportion of Latinos (Ho, Soriano, Yeh, McCabe, and Hough, in preparation). In the present investigation, this measure has demonstrated good internal reliability for both parents (alpha = 0.93 ACA, alpha = 0.92 TCA) and youth (alpha = 0.88 ACA, alpha = .0.88 TCA). To utilize the bidimensional conceptualization of Acculturation, an interaction term will be created (ACA \* TCA) to examine whether these subscales together affect Engagement. In particular, I am interested in whether there is a relationship between biculturalism (high endorsement of both ACA and TCA) and Engagement.

Youth Mental Health Symptomatology: The Child Behavior Checklist (CBCL; Achenbach, 1991). Youth symptomatology severity was assessed via parent report at parent baseline interview and at each parent follow-up interview. The CBCL is a valid

and reliable measure of child's emotional/behavioral problems that asks parents to rate 113 items on a 3 point Likert scale (0 = not true, 1 = sometimes true, 2 = very true or often true). It employs age-normed comparisons of behavioral/emotional symptomatology for children/adolescents ages 2-18. The Child Behavior Checklist generates 8 narrow-band syndrome scores (aggressive behavior, anxious/depressed, attention problems, delinquent rule-breaking behavior, social problems, somatic complaints, thought problems, and withdrawn), 2 broad internalizing and externalizing problems scores, and a total problems score (Child Behavior Checklist scale alpha = .59-.95), each with thresholds for clinical and borderline clinical functioning. The measure has well-established reliability (mean  $r$  test-retest for Child Behavior Checklist scales = .89) and construct validity (Child Behavior Checklist Total Problems score correlates  $r = .82$  with the Parent Questionnaire (Conners, 1973) and  $r = .81$  with the Revised Behavior Problem Checklist (Quay and Peterson, 1983). Total behavior problem T-score at parent baseline report was used to assess symptomatology in this study, which achieved an internal alpha = 0.96 in this parent sample.

Sociodemographic Variables: Age, gender, and ethnicity were provided by adolescent/parent self-report. Family income was assessed through parental response of the amount of family income per month (continuous variable).

## DATA ANALYSES

To examine relationships between HLOC and Acculturation (Aim 1), Pearson correlation coefficients were calculated to determine associations between bidimensional Acculturation conceptualized as two continuous scales (ACA and TCA) and multidimensional HLOC conceptualized as three continuous scales (Internal, Powerful Others, Chance). To ascertain the effects of HLOC on parental Engagement (Aim 2), multiple regression analyses were conducted with the three HLOC scales (parent report) as independent variables and clinician-reported parental Engagement as the dependent variable. The same regression analyses were repeated for the youth sample, with youth report HLOC as independent variables and clinician-reported youth Engagement as the dependent variable. To ascertain the effects of bidimensional Acculturation on parental Engagement (Aim 3), hierarchical multiple regression analyses were conducted with the two Acculturation scales (ACA, TCA) as independent variables (main effects), then  $ACA * TCA$  entered as an additional independent variable in the final step (interaction effect), and clinician-reported parental Engagement as the dependent variable. The same regression analyses were repeated for the youth sample, with youth reported Acculturation as independent variables, then  $ACA * TCA$  entered as an additional independent variable, and clinician-reported youth Engagement as the dependent variable. All regression analyses controlled for the following variables: a) Family income: Tinsley (1992) suggested that families at lower income levels are likely to be poor utilizers of health services, and this might relate to a greater belief in Chance HLOC, b) Age: literature suggests that older youths endorse more Internal LOC (Olvera, Remy, Power,

Bellamy, & Hays, 2001) and endorse less Powerful Others and Chance LOC (Malcarne, Drahotka, & Hamilton, 2005; Eiser et al., 1989; Stanton et al., 1995), c) Gender: literature suggests that boys endorse stronger Powerful Others LOC than girls (Eiser et al., 1989; Wilson et al. 1994), and d) Youth problem severity: some literature suggests that there may be a relationship between LOC beliefs and degree of psychopathology (i.e., youths that have more severe psychopathology also have more external LOC attributions; Burke & Elliot, 1999; Le Roux & Smith, 1998; parents that have children with more severe psychopathology are more likely to endorse external LOC in their ability to affect youth emotional/behavioral outcomes; Morrissey-Kane & Prinz, 1999).

Due to extensive data quality control a minimum of missing data was expected. In the case that missing data occurs and no attrition patterns were found, mean substitution was utilized if 10% or less of valid responses were missing for an individual on a particular measure. This imputation method takes the average of all valid responses the individual endorses on a particular measure to substitute for missing item responses. In the current subsample, mean substitution was used for only a few individuals (5 out of 80 in the parent sample, 3 out of 77 in the youth sample) for the PAN Acculturation Scale. For the Engagement Measure, mean substitution was used for the majority of individuals (31 out of 43 in the parent sample, 31 out of 34 in the youth sample). This is due largely due to non-response to compliance with medication question for a large proportion of our parent (31 out of 43) and youth (30 out of 34) sample, possibly because clients were not prescribed medication, or because

therapists were not directly involved in ensuring clients were compliant with medication treatment. Mean substitution was not used on any of the other measures utilized in the present investigation.

## RESULTS

Aim 1: Correlation analyses for HLOC and Acculturation. Relationships between Acculturation and HLOC dimensions were examined using Pearson correlation. For the parent sample, ACA endorsement was significantly negatively correlated with Powerful Others HLOC ( $r = -.220, p < .05$ ) and Chance HLOC ( $r = -.350, p < .01$ ). For the youth sample; ACA endorsement showed a trend of positive relationship with Internal HLOC ( $r = .221, p = .054$ ). ACA and TCA were significantly negatively correlated in parent and youth samples ( $r = -.510, p < .001$  parent sample,  $r = -.555, p < .001$  youth sample). In the parent sample, Internal HLOC was significantly negatively correlated with Powerful Others HLOC ( $r = -.244, p < .01$ ), and Powerful Others HLOC was significantly positively correlated with Chance HLOC ( $r = .528, p < .001$ ). In the youth sample, Powerful Others HLOC and Chance HLOC were significantly positively correlated ( $.276, p < .05$ ). Please see Tables 1 and 2 for means, standard deviations, and correlations between study variables.

Aim 2: Regression analyses for HLOC and Engagement. To examine the relationship between HLOC dimensions and Engagement in the parent sample, a multiple regression analysis was conducted with available parent sample to date with 2-month follow-up data ( $n = 43$ ), controlling for income and parent-reported youth symptomatology at baseline, with HLOC scales (parent report) as independent variables, and clinician-reported parent Engagement as the dependent variable. No significant relationships were found. To examine the relationship between HLOC and Engagement in youth sample, a multiple regression analysis was conducted with

available youth sample to date with 2-month follow-up data ( $n = 34$ ), controlling for age, gender, income, and parent-reported youth symptomatology at baseline, with HLOC scales (youth report) as independent variables, and clinician-reported youth Engagement as the dependent variable. No significant results were found. Please see Tables 3 and 4 for results of regression analyses.

Aim 3: Regression analyses for Acculturation and Engagement. To examine the relationship between Acculturation dimensions and Engagement in the parent sample, hierarchical multiple regression was conducted with available parent sample to date with 2-month follow-up data ( $n = 43$ ), with demographic variables (age, gender, income, and symptomatology) entered at the first step, the two Acculturation scales ACA and TCA (parent report) as independent variables entered in the second step, and the interaction between ACA\* TCA entered in the third step, and clinician-reported parent Engagement as the dependent variable. No significant main or interaction effects were found. To examine the relationship between HLOC and Engagement in the youth sample, parallel hierarchical multiple regression analyses were conducted for youth report of Acculturation, and clinician-reported youth Engagement as the dependent variable, utilizing available youth sample to date with 2-month follow-up data ( $n = 34$ ). No significant main or interaction effects were found. Please see Tables 5 and 6 for results of regression analyses.

POWER ANALYSES, ESTIMATED EFFECT SIZE, PROJECTED SAMPLE SIZES

The results of the current preliminary examination allowed us to estimate the effect sizes of hypothesized relationships and the probability of detecting these effects in the full sample of Latinos (currently estimated  $n=130$ ) using the Power Analysis and Sample Size (PASS) Program. Projected sample sizes were calculated for  $R$ -squared change which provides information about significance of omnibus models, betas of regression slopes between pairs of variables, and correlation coefficients between pairs of variables. We specified alpha level at .05 and power to detect effects at 80%. Effect size estimates were obtained from  $r$  (correlation coefficient) in our correlation analyses, and from  $r$ -squared change in our regression analyses. These values were then compared to Cohen's rule of thumb (1988, 1992) of .10 (small effect), .30 (medium effect), and .50 (large effect) to estimate effect sizes for correlation analyses, and to these values squared (.01 small effect, .09 medium effect, and .25 large effect) to estimate effect sizes for regression analyses. Please see Table 7 for estimated effect sizes and projected samples needed to obtain significant  $r$ -squared change, regression betas, and correlation coefficients.

Aim 1: Estimated Effect Sizes and Projected Sample Size Estimation for Correlation analyses (HLOC and Acculturation). Please note that for Aim 1, current sample sizes are as follows: Youth  $n = 77$ , Parent  $n = 80$ . Projections revealed that we are likely to detect significant associations for ACA and Internal HLOC (estimated small to medium effect size, projected sample for significant effect = 97) and for TCA and Internal HLOC (estimated small effect size, projected sample = 138) in our full Latino youth sample of  $n = 130$ . By contrast, projections revealed that we are very

unlikely to detect any other associations between HLOC and Acculturation for the youth sample. For the parent sample, projections revealed that there is a small likelihood of detecting a significant association between TCA and Powerful Others HLOC (estimated small to medium effect size, projected sample = 173) in our full Latino parent sample of  $n = 130$ . Results are significant for correlations between Powerful Others HLOC and ACA, and Chance HLOC and ACA in the parent sample; thus, power analyses were not conducted for these relationships. All other HLOC and Acculturation associations in the parent sample are very unlikely to be detected in the full sample.

Aim 2: Estimated Effect Sizes and Projected Sample Size Estimation for Regression analyses (HLOC and Engagement). Please note that for Aim 2, current sample sizes are as follows: Youth  $n = 34$ , Parent  $n = 43$ . Projections revealed that we are likely to detect a significant relationship between youth Internal HLOC and youth Engagement holding constant youth age, youth gender, family income, parent report of youth baseline symptomatology (estimated medium effect size, projected sample = 72) in our full youth sample of  $n = 130$ . We are very unlikely to detect significant relationships between Powerful Others HLOC and youth Engagement (estimated small effect size, projected sample = 273) and Chance HLOC and youth Engagement (estimated near-zero effect size, projected sample = 669). In the parent sample, projections demonstrate the likelihood of detecting a significant relationship between Chance HLOC and parent Engagement holding constant family income and parent report of youth baseline symptomatology (estimated small effect size, projected

sample = 108) in our full parent sample of  $n = 130$ . We are very unlikely to detect significant relationships between Powerful Others HLOC and parent Engagement (estimated small effect size, projected sample = 834) and Internal HLOC and parent Engagement (estimated small effect size, projected sample = 458).

Aim 3: Estimated Effect Sizes and Projected Sample Size Estimation for Regression analyses (Acculturation and Engagement). Please note that for Aim 3, current sample sizes are as follows: Youth  $n = 34$ , Parent  $n = 43$ . Projections revealed that there is a small likelihood of detecting a significant relationship between youth ACA and youth Engagement holding constant youth age, youth gender, family income, parent report of youth baseline symptomatology (estimated small effect size, projected sample = 171) in our full youth sample of  $n = 130$ . We are very unlikely to detect significant relationships between youth TCA and youth Engagement (estimated near-zero effect size, projected sample = 1041). In the parent sample, projections demonstrate the likelihood of detecting a significant relationship between TCA and parent Engagement holding constant family income and parent report of youth baseline symptomatology (estimated small to medium effect size, projected sample = 96) in our full parent sample of  $n = 130$ . We are unlikely to detect significant relationships between ACA and parent Engagement (estimated small effect size, projected sample = 386). We are also very unlikely to find support for a relationship between biculturalism and engagement in both our youth and parent samples (both estimated effect sizes are approximately zero).

## DISCUSSION

The aims of the current study were to provide a preliminary examination of the associations between HLOC and Acculturation (Aim 1), and to examine HLOC (Aim 2) and Acculturation (Aim 3) as predictors in parental and youth Engagement in youth mental health services. Consistent with the hypotheses for our first aim, HLOC was associated with Acculturation in both parent and youth samples in expected directions. For the youth sample, endorsement of ACA showed a trend toward a positive relationship with Internal HLOC beliefs. This is consistent with literature suggesting previous findings that HLOC becomes more internal with stronger Americanism (Guinn, 1998). For the parent sample, endorsement of ACA was significantly negatively correlated with Powerful Others and Chance HLOC beliefs about the care of their child's mental health. Although no previous studies have examined the correlation between HLOC and Acculturation for adults, this finding may be consistent with studies that examined ethnic differences and LOC. Previous findings show that Caucasian Americans are less likely to endorse external LOC (Powerful Others and/or Chance), and the present findings may be seen as consistent if one assumes that Caucasian Americans are highly affiliated with mainstream American culture and thus would endorse more ACA items. However, ethnicity should not be seen as an exact proxy for Acculturation or vice versa.

The lack of significant positive relationships between external HLOC (Powerful Others, Chance) and TCA endorsement in our present youth sample is

inconsistent with traditional Mexican beliefs regarding illness. In addition, projection analyses revealed that we are extremely unlikely to find significant effects between Chance HLOC and TCA in our full youth sample, whereas we are slightly more likely to find significant effects between Powerful Others HLOC and TCA in our full youth sample. The results in our youth sample are similar to the results of Guinn's (1988) investigation into the relationship between Acculturation and HLOC; namely, that Mexicanism was not related to Chance HLOC in a sample of Mexican adolescents. Study of health conceptions among Mexican Americans reveals the most salient features of disease causation and prevention within the traditional Mexican culture are supernatural sanction and fatalistic acceptance (Clark, 1970; Schulman & Smith, 1962). Fatalistic acceptance is the view that being well or ill is an area in life in which God (or some extrahuman entity) has been influential. Supernatural sanction is the idea that illness results from a natural occurrence that is beyond the realm of human forces and is in a sense unpreventable. These beliefs may correspond to the adoption of external HLOC, and specifically, Powerful Others HLOC. Although projection analyses reveal an extremely small likelihood of detecting an effect between Powerful Others HLOC and TCA, literature supporting a relationship between these variables for Latino youth should be clarified in our full youth sample.

The lack of significant positive relationships between external HLOC (Powerful Others, Chance) and TCA endorsement in our present parent sample is also inconsistent with traditional Mexican beliefs regarding illness described above. However, it is interesting to note that although projection analyses reveal a small

likelihood of finding significant effects between these variables in the full adult sample, the sample size needed to detect a significant effect is much smaller than the projected sample size for youth, and the estimated effect sizes for these relationships are also larger for the parent sample (small effects for parent sample compared to near-zero effects in youth sample). This may suggest that external HLOC and TCA are more likely to be related constructs in our parent sample than in our youth sample.

It is interesting to note that significant correlations were found for youth ACA and Internal HLOC in expected directions, but no significant correlations were found for youth ACA and external HLOC (Powerful Others and Chance). In contrast, significant correlations were found for parent ACA and external HLOC (Powerful Others and Chance), but no significant correlations were found for parent ACA and Internal HLOC. It may be that these different patterns of significant relationships are related to the degree of affiliation to American culture of the parent and youth samples as a whole. The youth sample were primarily English speaking and consisted of mostly non-immigrants, while the parent sample was more Spanish speaking and consisted of mostly immigrants. It may be that Internal HLOC (which relates to Americanism in existing literature) may be a more important factor for Acculturation in our more Americanized youth sample, whereas external HLOC (Powerful Others and Chance, which relates to affiliation to an indigenous culture in existing literature) is more important to Acculturation in our more traditional parent sample. This is supported by the results of our projection analyses, which demonstrate a likelihood of finding significant correlations between ACA and Internal HLOC in our more

Americanized youth sample (but very little likelihood of finding relationships between ACA and Internal HLOC in our parent sample), and a likelihood of finding significant correlations between TCA and external (i.e., Powerful Others) HLOC for our more traditional parent sample (but very little likelihood of finding relationships between TCA and external HLOC for our youth sample). Again, analyses utilizing our full samples will help us to gain further understanding into possible patterns among these variables for Latino parents and youth.

Although the a-priori aims of this study did not include examining the relationships between the HLOC subscales, these findings are worthy of consideration, especially the differences between the parent and youth sample. The significant positive association between Powerful Others HLOC and Chance HLOC were found for both parents and youth in our samples, but the significant negative associations between Internal HLOC with Powerful Others HLOC in the parent sample were not found in the youth sample. (see Table 2). These results are somewhat consistent with previous research, as Malcarne, Drahota, & Hamilton (2005) found that although all three HLOC subscales were significantly positively associated with each other, correlations between the two External scales (Powerful Others and Chance) were stronger than the correlations between Internal scale with either of the External scales in Latino youth. As no previous investigations have directly examined the associations between the three subscales for Latino parents, future research should consider studying these relationships further. It is possible that HLOC as a construct operates differently for Latino adults and youth. For example, it may be that HLOC may be

better conceptualized as a unidimensional construct for Latino adults, so that Internal HLOC endorsement is inversely related to External (Powerful Others and Chance) HLOC endorsement. In Latino youth, HLOC may be better conceptualized as multidimensional, so that the relationships between Internal and External endorsement do not necessarily vary along one spectrum. Another hypothesis is that HLOC conceptualization is different for immigrant v. non-immigrant populations. In our samples, a larger percentage of parents are immigrants (90%) compared to youth (22%), and it is possible that HLOC is better conceptualized as unidimensional for immigrant populations, and multidimensional for non-immigrant populations. The possibility of differences in HLOC conceptualization in immigrant v. non-immigrant populations for Latinos should be further investigated in our full samples.

Our hypothesis that HLOC would be related to health behaviors such as Engagement in therapy was not supported in the adult or youth sample in these preliminary analyses. Similarly, our hypothesis that Acculturation would be related to Engagement was also not supported in either the adult or youth sample. As illustrated in our projected sample sizes, it is very possible that the limited sample sizes in the current investigation reduced our power to detect effects even if they do exist. Our projections suggest that we are likely to find relationships between youth Internal HLOC and Engagement, and to a lesser degree, a relationship between youth ACA and Engagement in our full youth sample. In the full parent sample, we are likely to find relationships between parent Chance HLOC and Engagement, and parent TCA and Engagement. These patterns are somewhat consistent with our findings for aim 1,

that significant relationships in the present sample and greater likelihood to detect effects in the full sample were found for Internal HLOC and ACA in the more Americanized youth sample, whereas significant relationships in the present sample and greater likelihood to detect effects in the full sample were found for External HLOC and TCA in the more traditional parent sample. It may be that dimensions associated with affiliation to American culture (Internal HLOC, ACA) play a larger role in engagement for a more Americanized population, and that dimensions associated with affiliation to an indigenous culture (External HLOC, TCA) play a larger role in engagement for a more traditional population. Furthermore, it may be that acculturation operates to a greater extent in engagement in immigrant populations, which may explain why the effect sizes for the relationships between acculturation and engagement (and especially for TCA and Engagement) are near-zero in our more Americanized youth sample. Thus, these relationships should be explored, and analyses should be conducted once the full youth and adult samples are obtained.

The results of the present pilot study, in conjunction with our effect size estimates and projection analyses, may help us to re-formulate and re-structure the examination of the relationships between HLOC, Acculturation, and Engagement for our full youth and parent samples. In particular, it appears that bicultural acculturation style is not likely to be related to engagement for Latino parents or youth, and as such, will be removed from our aim 3 regression analyses in the full samples. Also, it appears that HLOC may operate differently for our parent sample v. our youth sample, in that the unidimensional conceptualization of HLOC may be more applicable to our

more traditional parent sample, whereas the multidimensional conceptualization of HLOC may be more applicable to our youth sample. This should be formally examined in the full parent and youth samples by comparing results for our study aims using a unidimensional measure of HLOC v. using the present multidimensional HLOC measure). Finally, it appears that Internal HLOC may operate to a greater extent in Engagement for our more Americanized youth sample, whereas External (e.g., Powerful Others, Chance) HLOC may operate to a greater extent in Engagement for our more traditional parent sample. Given these observations, our hypotheses for aim 2 may be restructured to achieve further specificity, as follows:

1) Internal HLOC will predict better Engagement in therapy may be further specified to 1a) Internal HLOC will predict better Engagement in therapy for adolescents/more Americanized individuals, 2) Chance HLOC will predict poorer Engagement in therapy may be further specified to 2a) Chance HLOC will predict poorer Engagement in therapy for parents/more traditional individuals. As such, analyses in the full sample may employ hierarchical regression to examine the main effect of acculturation while controlling for HLOC and the interaction effect of HLOC \* Acculturation to examine whether the relationship between HLOC and Engagement does indeed depend on the endorsement of Acculturation dimensions.

## LIMITATIONS

This study is limited by sample size and further follow-up data should be gathered before making any conclusions about the relationships between HLOC,

Acculturation, and Engagement in youth services. In addition, only Latino parents and youth were included in this study and results cannot be generalized to other groups because cultural factors that influence the MH treatment process (e.g., HLOC, Acculturation, beliefs about causes of MH illness, worldviews and ideologies) may differ between (or play different roles for) various ethnic and cultural groups. Future studies should incorporate other cultural groups to examine how these variables relate to each other for African American, Asian/Pacific Islander, American Indian/Alaskan Native, and non-Hispanic White adult and youth samples. The only demographic variables considered were age, gender, and family income, and the consideration of other possible salient relationships such as educational background and family burden may help to account for variance in the relationships between HLOC, Acculturation, and Engagement for Latino families. The relationship to actual behavior (e.g., Engagement) was considered, but from the clinician's perspective and not from the youth or parent (client) perspective. It is possible that clients' perception of their own engagement may differ from the perception of therapists (e.g., families may believe they are very engaged in therapy even if they are not active in decision making during sessions). Thus, it is possible that we may find different relationships between HLOC, Acculturation, Engagement, and outcomes if client report of engagement was utilized. The relationship of study variables to actual mental health outcomes (e.g., symptomatology at follow-up) was not considered in this study, and it will be important to consider how better or poorer engagement may relate to adolescents' symptom reduction and level of functional impairment to increase real-world clinical

applications of this investigation. Finally, this study utilizes what should be considered as a preliminary/pilot sample of the larger TWIST study and analyses with the full sample is needed before sound conclusions or generalizations can be made.

## CLINICAL IMPLICATIONS

As the current results and projection analyses suggest, important relationships may exist between HLOC and engagement, and Acculturation and Engagement. If these relationships are further elucidated in the full sample of TWIST, there are a number of clinical implications worthy of consideration. To illustrate the utility of projected findings, I highlight how results may help to increase engagement, treatment retention, and outcomes of MH services for ethnically and culturally diverse families.

- 1) Upon intake screening for MH services, clients and families may be instructed to fill out a HLOC measure and an Acculturation measure. These assessments will help to identify patterns of HLOC and Acculturation endorsement of different individuals at the start of MH services. This information may then inform clinicians and other clinical staff about the client's attributional style and the degree to which the client subscribes to traditional cultural v. American cultural values, which will be helpful to and planning and conducting treatment sessions.
- 2) If full analyses demonstrate that internal HLOC is related to better engagement and better outcomes in the full sample, strategies throughout the treatment process to build self-efficacy regarding their mental health should be utilized to improve engagement and outcomes. This may involve specific techniques such as attribution retraining, the identification of underlying rationale for different patterns of attributions, and cognitive-behavioral exercises that encourage active involvement and participation in the therapeutic process.

- 3) If full analyses demonstrate that TCA is positively related to poorer engagement and/or poorer outcomes, or that ACA is negatively related to poorer engagement and/or poorer outcomes in the full sample, psychoeducational efforts should be increased and perhaps be a primary focus in therapy sessions for individuals less acculturated to American culture. Utilizing education to overcome possible stigma toward western MH services, providing an open and non-judgmental environment to discuss cultural barriers to effective MH treatment, and treatment conceptualizations that take into account cultural perceptions of the client (e.g., beliefs and expression of MH illness) may be helpful to increase engagement, treatment retention, and outcomes for diverse populations.
- 4) The results of the full investigation may also help MH professionals to become more aware of cultural factors that may influence various aspects of the treatment process, invalidate various stereotypes about different cultures that may be counterproductive in therapy, and encourage therapists to move toward cultural competence in their work with those with MH needs.

## PLANNED INVESTIGATIONS

The analyses conducted in the present investigation will be repeated once TWIST data collection is complete so that the final sample of Latino parents and youth may be used. Upon TWIST data completion, the following programmatic investigations are planned:

- 1) Conduct analyses in present investigation with all four ethnic groups collected in TWIST study: African Americans, Latinos, Asian/Pacific Islanders, and non-Hispanic Whites. The additional comparison of racial/ethnic differences among HLOC, Acculturation, and Engagement in youth mental health treatment will also be considered as a major aim of the investigation. Examining racial/ethnic comparisons may help to gain additional information about whether relationships of study variables differ in various cultures.
- 2) Examine the relationship between HLOC, Acculturation, and Engagement to longitudinal treatment outcomes (measured by symptomatology, functional impairment, and school functioning variables). Specifically, whether Engagement is a partial mediator in the relationship between HLOC and treatment outcomes and/or in the relationship between Acculturation and youth treatment outcomes for African American, Latino, Asian/Pacific Islanders, and non-Hispanic White parents and youth will be investigated. Racial/ethnic comparisons of outcomes will be considered to examine the relationships of study variables in various cultures.

- 3) Utilize results of the current study to formulate more specific, clinically meaningful questions that can be investigated in future studies involving HLOC, Acculturation, Engagement, and youth mental health outcomes. As these studies progress, I hope to utilize the findings to identify points of intervention for Engagement strategies that may be pilot-tested for effectiveness in aiding treatment retention for minority families.

## APPENDIX

### FOOTNOTES

<sup>1</sup>Unmet mental health needs is defined as a lack of mental health service use when mental health needs (e.g., psychopathology or associated functional impairment) were present (Yeh, McCabe, Hough, Dupuis, and Hazen, 2003; Flisher et al., 1997).

<sup>2</sup>Treatment retention is usually measured by dropout (defined as the failure to return for treatment after one session) and/or premature termination (defined as parent or family terminating treatment before completing the recommended number of sessions and when doing so is considered inadvisable/against the advise of the clinician; Bui and Takeuchi, 1992; O'Sullivan, Peterson, Cox, and Kirkeby, 1989; Sue, Fujino, Hu, and Takeuchi, 1991; Sue and McKinney, 1975; Kazdin, Stolar, and Marciano, 1995; Kazdin, Holland, and Crowley, 1997).

<sup>3</sup>A multi-faceted concept that refers to the degree of involvement in services, measured by appointment keeping, client-therapist alliance and communication, collaboration and compliance with treatment; Hall, Meaden, Smith, and Jones, 2001.

<sup>4</sup>The method providers use to assist youth and families in overcoming obstacles, thereby involving youth in needed mental health services.

Table 1. Means, Standard Deviations, and Intercorrelations—Parent sample

Variable	M	SD	1	2	3	4	5	6	7
ACA	6.95	6.03	_____						
TCA	19.88	4.18	-.510***	_____					
Internal HLOC	4.51	1.58	.169	-.071	_____				
Powerful Others HLOC	3.49	1.74	-.220*	.188	-.244**	_____			
Chance LOC	4.06	1.09	-.350**	.143	-.180	.528***	_____		
Income (monthly)	1309.79	801.41	.016	-.054	.056	-.018	-.044	_____	
Youth symptomatology	61.85	9.53	.199	-.020	-.071	-.086	-.174	.114	_____

Note. ACA = American Cultural Affiliation, TCA = Traditional Cultural Affiliation

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

<sup>^</sup> $p < .06$

Table 2. Means, Standard Deviations, and Intercorrelations—Youth Sample

Variable	M	SD	1	2	3	4	5	6	7	8	9
ACA	13.56	5.35	_____								
TCA	19.27	5.17	-.555***	_____							
Internal HLOC	4.53	1.68	.221^	-.210	_____						
Powerful Others HLOC	2.65	1.82	.011	.115	-.089	_____					
Chance LOC	1.38	1.29	-.176	.034	-.063	.276*	_____				
Age	13.57	1.34	.080	-.078	.044	-.176	-.233*	_____			
Gender	1.45	.501	.179	-.079	-.026	-.039	.017	.235*	_____		
Income (monthly)	1231.2 6	762.75	-.190	.025	-.138	.000	-.094	.095	.061	_____	
Youth Symptomatology	61.68	9.69	-.244*	.023	-.210	-.007	-.010	.130	-.067	.167	_____

Note. ACA = American Cultural Affiliation; TCA = Traditional Cultural Affiliation

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

^  $p < .06$

Table 3. Multiple Regression Analyses of HLOC and Engagement—Parent

Variable	Model 1 $\beta$ (Demographic variables only)	Model 2 $\beta$ (All variables)
Family income	-.002	-.001
Youth symptomatology	-.070	-.013
Internal HLOC		-.670
Powerful Others HLOC		.477
Chance HLOC		2.074

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

$\wedge p < .06$

Table 4. Multiple Regression Analyses of HLOC and Engagement—Youth

Variable	Model 1 $\beta$ (Demographic variables only)	Model 2 $\beta$ (All variables)
Youth age	-.290	-.336
Youth gender	-.611	.716
Family income	.000	.000
Youth symptomatology	-.181	-.098
Internal HLOC		1.310
Powerful Others HLOC		.640
Chance HLOC		-.588

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

$\wedge p < .06$

Table 5. Multiple Regression Analyses of Acculturation and Engagement—Parent

Variable	Model 1 $\beta$ (Demographic variables only)	Model 2 $\beta$ (All first-order variables)	Model 3 $\beta$ (All variables)
Family income	-.002	-.003	-.003
Youth symptomatology	-.070	-.008	-.009
ACA		-.200	-.271
TCA		1.010	.976
ACA * TCA			.003

Note. ACA = American Cultural Affiliation, TCA = Traditional Cultural Affiliation

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

<sup>^</sup> $p < .06$

Table 6. Multiple Regression Analyses of Acculturation and Engagement—Youth

Variable	Model 1 $\beta$ (Demographic variables only)	Model 2 $\beta$ (All first-order variables)	Model 3 $\beta$ (All variables)
Youth age	-.922	-1.166	-1.165
Youth gender	.716	-.425	-.475
Family income	-.002	-.001	-.001
ACA		.307	.996
TCA		.233	.687
ACA * TCA			-.033

Note. ACA = American Cultural Affiliation, TCA = Traditional Cultural Affiliation

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

<sup>^</sup> $p < .06$

Table 7. Projected Sample Sizes Needed to Detect Effect Size

Analyses	-----YOUTH SAMPLE-----			-----PARENT SAMPLE-----		
	<i>B</i>	Effect size	Projected <i>n</i>	$\beta$	Effect size	Projected <i>n</i>
<i>Aim 1</i>						
ACA – Internal HLOC		.221**	97		.169*	215
ACA – Powerful Others HLOC		.011	51,091		-.220**	significant in this sample
ACA – Chance HLOC		-.176*	198		-.350***	significant in this sample
TCA – Internal HLOC		-.210*	138		-.071*	1260
TCA – Powerful Others HLOC		.115*	466		.188*	173
TCA – Chance HLOC		.034	5,346		.143*	301
<i>Aim 2</i>						
<i>r</i> -squared change for model 2		.103**	87		.114**	76
Internal HLOC – Engagement	1.310	.082**	72	-.670	.042**	458
Powerful Others HLOC – Engagement	.640	.014*	273	.477	.035**	834
Chance HLOC – Engagement	-.588	.007	669	2.074	.038**	108
<i>Aim 3</i>						
<i>r</i> -squared change for model 2		.027*	332		.099***	88
ACA – Engagement	.307	.021*	171	-.271	.049**	386
TCA—	.233	.001	1041	.976	.050**	96
Engagement						
TCA – Engagement	-.033	.001	7032	.003	<.000	Cannot be calculated

Note. \*small effect size, \*\*small-medium effect size, \*\*\*medium effect size

Based on Cohen’s cutoffs (1988, 1992): .1, .3, .5 for correlations, .01, .09, .25 for regression coefficients

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