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The purpose of this short-term longitudinal study was to examine relations between trauma exposure, acculturative stress, school belonging, and internalizing symptoms in immigrant and refugee adolescents recently arriving into the United States. Participants were students between 5th and 11th grade (N = 94) who were enrolled in an alternative public school for newly arriving youth. At two different time points, students completed an electronic screening designed to assess exposure to adverse events and factors related to adjustment into a new country. Teachers reported on social skills and problem behaviors. Results indicated that acculturative stress was related to anxiety and depression after accounting for cumulative trauma and other relevant covariates. Acculturative stress remained stable over time, and differences in trauma exposure emerged between groups of students relatively high and low in acculturative stress and school belonging. Information yielded from the screening allowed school administration and staff to identify students at risk for adjustment difficulties and informed topics for group interventions. Implications for policy and practice are discussed.

PSYCHOLOGICAL ADJUSTMENT AND WELL-BEING IN RECENTLY ARRIVING  
IMMIGRANT ADOLESCENTS

by

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## CHAPTER I

### INTRODUCTION

According to the United Nations High Commissioner for Refugees (UNHCR, 2009), an immigrant is a person who takes up permanent residence in a foreign land. Refugees, asylum seekers, and other individuals who move to a foreign country are broadly considered *immigrants*. Refugees and asylum seekers typically leave their country to escape persecution, whereas other immigrants relocate for a variety of reasons. Regardless of intentions for leaving one's country, the migratory process involves a variety of experiences, some of which may include transition difficulties and exposure to trauma. Specific types of trauma vary, and immigrants are exposed to adverse events before, during, or after migration (Montgomery, 2010; Thomas & Lau, 2002; Tran, 1993).

In 2009, the United States granted permanent residency to over one million immigrants (U.S. Department of Homeland Security, 2010). Between 2004 and 2008, nearly 43 percent of refugees admitted into the United States were children (American Psychological Association, 2010). Since 2007, North Carolina has ranked among the top fifteen states with the largest number of overall immigrants obtaining legal permanent residence (U.S. Department of Homeland Security, 2010) and among the top ten states with the largest number of refugees (Martin, 2010).

Because adolescent immigrants often endure adversity that can negatively impact their development (Lustig et al., 2004), the American Psychological Association (APA) endorses research that “examines the broad range of war, displacement, and resettlement stressors that can affect the mental and behavioral health of refugee children...” (APA, 2010, p. 11). Ultimately, immigrants arrive into the United States by different means, and they accumulate different experiences along the way. Considering the growing number of immigrants arriving into and gaining resident status in the U.S., research must examine the impact of migratory and adjustment experiences on these individuals so that researchers, policy-makers and schools can better understand ways to respond to their distinctive needs.

Conducting research studies involving immigrants can be a complex endeavor. Researchers must be cognizant of the political and ideological context of the research, verbal and nonverbal cultural differences, the perception of the interviewee or research assistants, and appropriate use of interpreters and translators (Mestheneos, 2006; Temple & Edwards, 2006). Research indicates that bereaving and traumatized refugees tend to rate participation in research as positive (Dyregrov, Dyregrov & Raundalen, 2000). Most research with immigrant populations involves cross-sectional designs, and an examination of the longitudinal and developmental trajectories is needed (APA, 2010), including changes in psychopathology over time (Beiser, 2009; Huemer et al., 2009). Furthermore, the American Psychological Association (2010) noted that immigrant research lacks samples of nonclinical populations. This study addressed this limitation

by recruiting a community-based sample of adolescent immigrants from their school setting in central North Carolina.

There is significant heterogeneity in how immigrant populations are defined or described, for example first- or second-generation immigrants. Immigration researchers typically denote *recently arriving* immigrants as those who have lived in a new country of residence for five years or less (Chavez & Griffiths, 2009; Kulis, Marsiglia, & Nieri, 2009; Sarmiento et al., 2005; Vélez, 2009), although this had ranged in one study from 0 to 14 years (Gorman, Read, & Krueger, 2010). The present study will consider *recently arriving* immigrants as having resided in the United States for 18 months or less.

#### *Trauma and Psychopathology*

According to the *Diagnostic and Statistical Manual of Mental Disorders*, 4<sup>th</sup> edition Text Revision, a traumatic stressor involves the experiencing, witnessing, or confronting of “an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others” (American Psychiatric Association, 2000). This definition is sometimes understood to be limited to physical traumas, and may not include other types of trauma such as prolonged exposure to abandonment, racism, or genocide, all of which involve existential threats to one’s identity (Kira et al., 2008). American Psychological Association Division 56 (Trauma Psychology) broadened the definition of trauma to include myriad experiences that involves “disorganization of a core sense of self and world and leaves an indelible mark on one’s world views,” typically resulting in psychological disorders (The APA Trauma Group, 2000, cited in Kira et al., 2008, p. 63).

In immigrant populations, a single trauma is the exception (Kira, 2010). These populations tend to experience multiple forms of, and repeated exposure to, traumatic experiences that occur during the course of migration (Wiese, 2010). Exposure to multiple or prolonged traumatic experiences can impact later functioning and adjustment (American Psychological Association, 2010; Beiser, 2009; Kira, 2010).

Research with trauma victims has typically focused on symptoms related to posttraumatic stress disorder, therefore studies examining a broader range of internalizing symptoms is needed (Marshall et al., 2005), especially in youth. Research shows that immigrants' exposure to multiple traumatic experiences can lead to more severe internalizing symptoms later on. For example, degree of exposure to trauma is associated with internalizing symptoms in Cambodian refugee adults living in the United States even two decades after resettlement (Marshall, Schell, Elliott, Berthold, & Chun, 2005). Higher numbers and types of lifetime traumas are associated with a higher probability of posttraumatic stress disorder in Kosovar refugees living in the U.S. (Ai, Peterson, & Uebelhor, 2002) and adult refugees from Rwanda living in Uganda (Kolassa et al., 2010). Higher rates of exposure to traumatic events are associated with more severe depression and anxiety in adult refugees from Cambodia living in Thai refugee camps (Mollica, McInnes, Poole, & Tor, 1998). Similar findings have been discovered in West Nile adult refugees living in Uganda (Neuner et al., 2004) and Vietnamese adult refugees living in the U.S. (Mollica et al., 1998). Another study found that for Latina immigrants living in the U.S., reporting four or more types of traumatic events was associated with an increase in the probability of comorbid depression and anxiety (Kaltman, Green, Miranda, Mete,

& Shara, 2010). Other studies found that previous exposure to trauma in their country of origin may have made Latino immigrants living in the U.S. more susceptible to internalizing problems following the September 11<sup>th</sup> terrorist attacks (Boscarino & Adams, 2009; Pantin, Schwartz, Prado, Feaster, & Szapocznik, 2003).

While most aforementioned studies are conducted with immigrant adults, similar outcomes are evident in adolescents. Lloyd and Turner (2003) noted these outcomes in a diverse group of urban public school students in Florida: number of prior adversities was associated with increases in risk for internalizing symptoms. A positive correlation between exposure to political violence and anxiety has been discovered in Jewish Israeli and Palestinian adolescents living in Israel and Palestine (Al-Krenawi, Graham, & Kanat-Maymon, 2009). A higher number of war trauma experiences were associated with more severe anxiety and depression in Bosnian children and adolescents living in Greece (Papageorgiou et al., 2000).

Other literature with immigrant populations shows mixed results. Fortuna, Porche, and Alegria (2008) found no differences in rates of mental health disorders between immigrant Latinos living in the United States who had been exposed to political violence and those who had not. Another study found that immigrant Latinos living in the U.S. reported similar rates of trauma exposure as U.S.-born youth (Bridges, de Arellano, Rheingold, Danielson, & Silcott, 2010). Their study demonstrated no differential risk for internalizing disorders in immigrant Latinos compared to U.S.-born peers. Further research is needed to understand the complexity of the relation between exposure to trauma and internalizing symptoms in immigrant adolescents living in the United States.

Research tends to demonstrate that exposure to multiple traumas or prolonged trauma is related to more severe internalizing symptoms in immigrants. However, other factors must be considered when examining the relation between trauma exposure and internalizing problems.

### *Acculturative Stress*

Beiser (2009) explained that mental health risk in refugees is determined partly by stressors. These stressors may occur as a result of coming into contact with a new culture. Some individuals may navigate a new culture's norms and values with ease, whereas others may experience difficulties (Berry, 2006). Berry and Annis (1974) originally conceptualized acculturative stress as a cultural and behavioral discontinuity experienced as a result of the migratory process. They posited that some individuals are more susceptible to pressures associated with the process of coming into contact with a new culture. As such, acculturative stress refers to a type of tension that is brought about when an individual is unable to effectively use personal and situational resources (e.g. coping strategies and social support) to navigate a new culture (Williams & Berry, 1991). In other words, acculturative stress occurs when one is unable to easily confront the challenges associated with coming into contact with a new culture (Sam & Berry, 2010).

Acculturative stress is typically associated with anxiety and depression (Berry, 2006) among individuals from a variety of cultural and ethnic backgrounds.

Acculturative stress is associated with depression in adult Latino immigrants living in the United States (Hovey, 2000; Kiang, Grzywacz, Marín, Arcury, & Quandt, 2010) and adult Lebanese immigrants living in Canada (Gaudet, Clément, & Deuzeman, 2005). It is

also associated with anxiety in adult Mexican migrant farm workers living in the U.S. (Hovey & Magaña, 2002). In children and adolescents living in the U.S., acculturative stress is associated with anxiety and depression in Somali adolescent refugees (Ellis, MacDonald, Lincoln, & Cabral, 2008), with depression in Korean adolescents (Park, 2009), and with anxiety in Hispanic adolescents (Suarez-Morales & Lopez, 2009). The positive association between acculturative stress and depression is also seen in Chinese (Wei et al., 2007) and Taiwanese (Ying & Han, 2006) immigrants living in the United States. A higher number of acculturative stressors are related to more severe overall psychopathology in mainland Chinese adolescents living in Hong Kong (Keung Wong, Lam, Yan, & Hung, 2004). Considering the paucity of literature, more research is needed to better understand adjustment of immigrants from a variety of ethnic and cultural backgrounds.

Studies show that stressful experiences (e.g. the experiencing of acculturative stress) beyond traumatic events can increase risk for psychopathology (Lloyd & Turner, 2003). It is suggested that risk for internalizing symptoms may increase when acculturative stress works in combination with trauma or prior adversities (Beckerman & Corbett, 2008). Thus, higher levels of acculturative stress may exacerbate the effect of trauma exposure on internalizing symptoms. One study showed that Central American immigrants who reported high levels of acculturative stress also reported elevated levels of depression (Hovey, 2000). It was inferred that these individuals had experienced some level of trauma, although neither trauma nor anxiety was measured. Another study demonstrated that stress reactions to trauma and acculturative stress both contribute to

psychopathology (Knipscheer & Kleber, 2006). Ellis et al. (2008) illustrated similar results by demonstrating that trauma exposure partially explained variance in anxiety symptoms, and acculturative stress explained variance above and beyond trauma exposure. Statistical interactions were not examined in Ellis et al. (2008) or Knipscheer and Kleber (2006). To date, no empirical study has examined whether acculturative stress moderates the relation between cumulative trauma exposure and a broad range of internalizing symptoms with adolescent immigrant populations.

### *School Belonging*

Schools may play a critical role in assisting immigrants with adjusting to life in a new country. Immigrant adolescents tend to view school as an important and influential factor in their new lives (Suárez-Orozco & Suárez-Orozco, 2001), partly because the school serves as a primary context for social relationships and for fulfilling a fundamental need for relatedness (Cemalcilar, 2010). However, a particular school experience may depend on an adolescent's sense of their acceptance and involvement with the school. Termed school belonging, this construct refers to a student's feeling of connectedness and acceptance by members of a school (Goodenow, 1992), including teachers and peers. Students with a strong sense of school belonging tend to be less anxious, less lonely, and are typically more satisfied with their lives (Cemalcilar, 2010). Schools may be perceived by students as a type of personal resource that, when a sense of belonging is achieved, can reduce stress and anxiety inside the classroom (Boekaerts, 1993).

Furthermore, school belonging typically varies inversely with internalizing symptoms. For example, school membership is negatively associated with anxiety and

depression in youth living in the United States (McMahon, Parnes, Keys, & Viola, 2008; Newman, Newman, Griffen, O'Connor, & Spas, 2007; Poteat & Espelage, 2007). School belonging is inversely associated with anxiety and depression in Somali adolescent refugees living the U.S. (Kia-Keating & Ellis, 2007), and with depression in Chinese adolescents living in Hong Kong (Sun & Hui, 2007). Overall, school belonging is less well-studied in immigrant adolescents.

When immigrant adolescents transition into a country with unfamiliar cultural values and norms, school belonging may be the first and strongest sense of social connectedness, which in turn may attenuate the relation between prior trauma exposure and internalizing symptoms. To date, one study has examined the moderating effects of school belonging on the relation between trauma exposure and depression in Somali adolescent refugees (Kia-Keating & Ellis, 2007). This study found no significant moderating effects; however, the authors used a trauma scale specific to war-related experiences rather than a broad scale including other potentially traumatic experiences that occur prior to, or during the course of, migration (e.g. natural disasters preceding forced migration, parental divorce, gender discrimination, etc.). A broader scale would account for more variation in exposure to trauma. Also, the authors used an outcome measure specific to depression. A measure that captures both anxiety and depression would incorporate a greater range of internalizing symptoms.

#### *Summary and Overview of Present Study*

Although trauma exposure and post-traumatic stress have been extensively studied in immigrant populations, factors such as internalizing symptoms, school

belonging, and especially acculturative stress are understudied in youth samples. The extent to which these factors influence adjustment is not well understood. Further research involving a broader range of immigrant experiences is needed. The school setting is an ideal place to study these relations, as schools are a key socialization context for newly arriving immigrants where relations between prior trauma and acculturative stress might be expressed (Beckerman & Corbett, 2008).

Ultimately, this study attempts to provide a clearer picture of factors related to adjustment for recently arriving immigrant youth. Specifically, it was examined whether acculturative stress and school belonging moderate the relation between trauma exposure and internalizing symptoms, and whether acculturative stress is moderated by sense of school belonging. We also wish to understand the general relation between adjustment and demographic factors. Making sense of the immigrant transition may allow practitioners, educators, and policy-makers to help facilitate adaptation to a new culture.

### *Hypotheses*

Hypothesis 1: The relation between trauma exposure and student-report internalizing symptoms will be moderated by acculturative stress. When acculturative stress is low, the impact of trauma exposure on internalizing symptoms will be attenuated. When acculturative stress is high, the impact of trauma exposure on internalizing symptoms will be exacerbated.

Hypothesis 2: The relation between trauma exposure and student-report internalizing symptoms will be moderated by sense of school belonging. When sense of school belonging is stronger, the impact of trauma exposure on psychopathology will be

attenuated. When sense of school belonging is less strong, the impact of trauma exposure on internalizing symptoms will either not change or will be exacerbated.

Hypothesis 3: The relation between Time 1 acculturative stress and Time 2 acculturative stress will be moderated by Time 1 sense of school belonging. Specifically, a stronger Time 1 sense of school belonging will be associated with lower levels of Time 2 acculturative stress, and a less strong Time 1 sense of school belonging will be associated with the same or higher levels of Time 2 acculturative stress.

Secondary hypotheses were also addressed. It was predicted that a positive linear relation will exist between the Internalizing subscale of the teacher-completed Social Skills Improvement System and Internalizing subscale of the Teacher Report Form. Social skills were predicted to be negatively associated with acculturative stress and problem behaviors. Teacher-reported social skills and student-reported sense of school belonging was predicted to be positively associated, since students with better social skills may be more effective at building rapport with teachers and peers on campus. Finally, because teacher and student reports tend to be only slightly associated with one another (Achenbach, McConaughy, & Howell, 1987; Achenbach, Dumenci, & Rescorla, 2002), it was predicted that a minimal or non-significant relation will exist between scores on the Youth Self Report and Teacher Report Form.

## CHAPTER II

### METHOD

#### *Procedure*

All data were collected in central North Carolina at a grades 3-12 alternative public school for refugee and immigrant students as part of a screening assessment and research study during the 2011-2012 academic school year. The project was funded by a community-based research grant through the Office of Leadership and Service Learning at the University of North Carolina at Greensboro (UNCG), and a Psi Chi Graduate Research Grant. Funds covered the cost of supplies and interpreters. On-site interpreters were provided by the school district and were given permission from administration to participate in data collection. Clinical services and on-site research assistants were provided by the Graduate Psychology Education Program training grant awarded to the UNCG Psychology Department by the U.S. Department of Health and Human Services, Health Resources and Services Administration.

Most immigrant students typically enroll in this particular school before the end of August. However, many enroll throughout the academic year depending on their date of arrival into the United States. For this study, data were collected twice (Time 1 and Time 2) per cohort. For Cohort 1, Time 1 and Time 2 occurred in October 2011 and January 2012, respectively. There were approximately nine weeks between Time 1 and Time 2. Cohort 2 consisted of students who began attending the school after January

2012. For Cohort 2, Time 1 occurred in May 2012, and Time 2 occurred in June 2012, with four weeks between each time point.

Interpreters made phone contact with caregivers and explained the nature of the study. Consents were then sent home with students for caregivers to sign and were returned to the school. Caregivers were informed that participation was voluntary, their child could withdraw from the study at any time, and there would be no negative consequence for declining participation. Consent and assent forms were translated by in-house interpreters into five primary languages: Burmese, French, Nepali, Spanish, and Vietnamese. These interpreters also made phone calls, and English documents were also available. Students were made aware of the purpose of the study as outlined on an assent form during a meeting with the school social worker. They signed this document prior to data collection.

School administrators assigned an appropriate block in which to pull student participants from class, and students were grouped in one of two computer labs by language. They spent approximately one and a half hours in the computer lab at Time 1. At Time 2, students had learned the self-report procedures and needed only one hour. Students completed demographics and student-report questionnaires with the aid of an interpreter who had been familiarized with each survey. Measures were transcribed electronically onto Qualtrics, an electronic research software. Three or four staff members were in charge of reading directions or monitoring participant progress. These included trained graduate and undergraduate students and a PhD level faculty member.

Due to the sensitive nature of the questionnaires, each staff member was trained to respond to a distressed student.

During data collection, folders were placed on the side of each participant's computer to ensure confidentiality of responses. Each survey involved similar yet unique self-report procedures. These procedures were designed to make self-reporting accessible to a group of students representing diverse cultural backgrounds and a range of experience with self-report questionnaires and technology. For each survey, a picture was paired with a written phrase, and practice items were used before each measure. Before being escorted to class, students were provided a small incentive for their participation. Overall, care was taken to engage in culturally competent communication, including the use of interpreters, checks for understanding, and clear and simple English (Rowe & Paterson, 2010).

Links to Qualtrics surveys were embedded onto a free Wix.com website. This website was preloaded onto computers when students arrived into the computer lab. Teachers were notified about the study at the beginning of the school year during a staff meeting, and their participation was requested. They were notified again in an email which provided a link to the website as well as specific instructions outlining how to complete each measure. They were asked to complete two measures, which took a total of about 15 minutes. If teachers did not complete surveys by the given deadline they were provided up to two reminder emails. All teachers who completed measures were provided a small token of appreciation for their time.

### *Participants*

The final sample consisted of 94 students grades 5 through 11 from 21 countries (see Tables 1 and 2; the organizational system for Table 2 coincides with the United Nations' Standard Country or Area Codes for Statistical Use). Just above half (53%) were male, and the majority of students (64%) had attended this particular school for 10 weeks or less prior to Time 1 for each respective cohort.

In terms of response rate for Cohort 1, 87 consents were distributed and 65 were returned, for a response rate of about 75%. For Cohort 2, 66 were distributed and 32 were returned, a rate of about 48%. Overall we distributed 153 consents and received 97 in return for a rate of about 63%. The majority of students who did not return consents in Cohort 1 were Vietnamese, and no caregivers of Vietnamese students returned a signed consent. The on-site Vietnamese interpreter reported that caregivers felt uncomfortable signing the document. One of the researchers spoke with this interpreter to ensure the study's procedures were accurately described to Vietnamese caregivers. The interpreter contacted the families a second time to clarify the nature of the study; however caregivers still indicated they did not wish to participate.

Although data were gathered from 99 participants, five students were excluded from analyses. Two students completed study measures but they did not have signed parental consent and were dropped from the sample. Two students represented a region of origin (i.e. Western Europe) with a sample size too small to enable statistical analysis, and one student appeared distracted during data collection.

Some students were absent at Time 1 or Time 2. Reasons for absence included illness or unexpected documentation investigations. Teachers neglected to complete questionnaires for 38 students for either Time 1 or Time 2, and an error during data collection resulted in 13 names being left off a list of participants, so teachers were not asked to complete questionnaires for these students at either Time 1 or Time 2.

### *Measures*

Measures were selected based on demonstration of reliability, validity, and cultural appropriateness with adolescent immigrant populations. In addition to considering reliability and validity, the most comprehensive measures with the fewest questions were used, which is especially important when gathering data from victims of trauma (Kira et al., 2009). In other words, measures with strong validity yet relatively few items were implemented. Barriers to assessment are a common issue when working with immigrant populations (Kaczorowski et al., 2011), consequently some questionnaires were modified in order to reduce these barriers (see Appendix A).

All questionnaires were administered at each time point except the Cumulative Trauma Scale. On this trauma checklist, there were a total of eight unanswered items from five participants. There were three items unanswered on the Acculturative Stress Inventory for Children (ASIC) from one participant. To resolve these issues, missing trauma items were treated as no responses. Due to the checklist nature of this measure, missing items were essentially counted as “0” traumatic experiences. The within-item mean was provided for missing data points on the ASIC.

Trauma Exposure. The Cumulative Trauma Scale (CTS) short form screens for occurrence and frequency of traumatic experiences across one's life (Kira et al., 2008). Many trauma checklists target specific populations experiencing a common trauma such as war, or ask about a single most traumatic event. However, the CTS screens for a broad range of traumatic experiences, which is especially important when working with immigrants from diverse backgrounds (de Jong et al., 2001), and when simultaneously assessing trauma history with psychopathology (Green et al., 2000). Questions include "I have been involved in or witnessed a war or combat" and "I have experienced life-threatening accidents, for example, motor vehicle accidents." Respondents are asked to indicate whether and how frequent an event has occurred (*never, once, two times, three times, four or more times*). This measure was originally tested on Iraqi refugees since the Iraqi population represents one of the most traumatized refugee groups (Kira et al., 2009).

In the validation study (Kira et al., 2008), adequate internal consistency was found for males ( $\alpha = .84$ ), females ( $\alpha = .85$ ), and adolescents ( $\alpha = .78$ ). Convergent validity was revealed by a significant positive correlation with torture severity scores (.66,  $p < .001$ ). A negative correlation with sociocultural adjustment (-.29,  $p < .001$ ) indicated divergent validity. Significant positive correlations with post-traumatic stress disorder (.57) and poor health (.24) demonstrate potential predictive validity.

The original checklist contained a subjective component asking respondents to indicate positive or negative attributions to each item. This component was not used since data about the occurrence and frequency of trauma was of primary interest. Additionally, the following items were removed because they were deemed inappropriate

for an adolescent population in a school setting: *I have been physically abused, pushed hard enough to cause injury, or beaten up by a caretaker, for example, by a parent; I was led to sexual contact by someone older than me; I was sexually abused, raped, or involved in unwanted sex with one or more persons; I was led to sexual contact by one of my caregivers/parents; I have experienced loss of a child or spouse; I have experienced employment termination, been laid off, or failed in business; I have remarried.* The consequence of removing these items involves a loss of potential variation; however, this loss is minimal since the remaining 26 items cover a wide range of traumatic experiences (see Original Cumulative Trauma Scale and Modified Cumulative Trauma Scale in Appendix A).

Since cumulative trauma was not likely to change over a few months, and in order to maintain efficient data collection procedures, the trauma checklist was administered at Time 1 only. Students indicated whether they experienced a traumatic event from the list of 26 different trauma types. If the answer was *yes*, they indicated how many times they experienced a traumatic event: *once, twice, three times, or four or more times*. Each response matched a cartoon picture of a glove holding up zero, one, two, three, or four fingers. Practice items included: *In my life I have moved from one country to another and I have broken a bone in an accident.*

Acculturative Stress. The Acculturative Stress Inventory for Children (ASIC; Suarez-Morales, Dillon, & Szapocznik, 2007) is a shorter version of the Societal, Attitudinal, Familial, and Environmental Acculturative Stress Scale for Children (SAFE-C; Chavez, Moran, Reid, & Lopez, 1997), which measures acculturative stress in children

and adolescents. Of the original 20 items from the SAFE-C, a total of 12 items were ultimately included in the ASIC (e.g. “I don’t feel at home here in the United States” and “It’s hard to be away from the country I used to live in”). The 12 items assess the extent to which a given acculturative stressor bothers a respondent on a Likert scale range from 1 (*Doesn’t Bother Me*) to 5 (*Bothers Me a Lot*), with an option of 0 (*Doesn’t Apply*).

The validation study demonstrated a Cronbach’s alpha of .82, and a two-week test-retest reliability estimate was .84. ASIC scores correlated significantly and positively with hassles (.57,  $p < .001$ ) and anxiety (.55,  $p < .001$ ), revealing convergent validity. No significant correlation was found between constructs measured by the ASIC and a child’s tendency to lie, revealing discriminant validity. For the present study, Cronbach’s alpha was .71 at Time 1 and .72 at Time 2.

A few modifications enhanced this measure’s utility with our particular sample. During a pilot study at the same school (Mendez, Nelson-Gray, & Thibeault, 2011), students responded more accurately when ASIC items were phrased as a question rather than a statement. For this study, all ASIC items were phrased as questions (see Appendix A). All response items in the original ASIC measured frequency of acculturative stress except for the last item, “It bothers me a lot,” which measures intensity. This last item was changed to a frequency report (i.e. “It frequently bothers me”) in order to maintain consistency with other response items.

The “Doesn’t Apply” option was removed in order to simplify the measure and because “Doesn’t Apply” is not a relevant response to some items. Suarez-Morales, Dillon, and Szapocznik (2007) demonstrated through a confirmatory factor analysis that

removing the “Doesn’t Apply” option—thus leaving “Doesn’t Bother Me” as the lowest response item—yielded a scoring model containing adequate and similar fit indices as the model which included the “Doesn’t Apply” option. They concluded that both scoring methods produce psychometrically equivalent findings.

For the present study, pictorial faces were provided that matched each response phrase. A neutral cartoon face corresponded with “No” a perturbed face was paired with “*Yes. It rarely bothers me,*” an unhappy face went with “*Yes. It sometimes bothers me,*” a very unhappy face represented “*Yes. It often bothers me,*” and the extremely unhappy face coincided with “*Yes. It bothers me a lot.*” Practice items included: *Does your family sometimes argue with one another?*, *Do you sometimes have difficulty speaking English?*, and *Do people sometimes make fun of you because you are from a different country?*

School Belonging. The Psychological Sense of School Membership scale (PSSM) contains 18 items that assess the extent to which a student demonstrates a sense of school membership using a Likert scale range of 1 (*Not at all true*) to 5 (*Completely True*; Goodenow, 1993). Questions include “I feel like a real part of (name of school)” and “I can really be myself at this school.” In the validation study, internal consistency reliability ranged from .77 to .88. Two-way and one-way ANOVAs distinguished known-groups (e.g. students who had lived in a town for a short amount of time versus students who had lived in the town longer), revealing construct validity. For the present study, Cronbach’s alpha was .87 at Time 1 and .85 at Time 2.

During the pilot study (Mendez, Nelson-Gray, & Thibeault, 2011), students experienced confusion with reverse-scored items, for example: “Sometimes I feel as if I don’t belong here.” In order to express belonging, students must respond with *no* or *not at all true*, thereby stating that it is not true that they feel as if they don’t belong. The language barrier exacerbated the difficulty involved in this roundabout way of responding to reverse-scored items. To solve this problem, all reverse-scored items on the PSSM were changed to typically scored items (see Appendix A). When these were used during the pilot study, it was clear that students better understood how to appropriately respond to each item.

For the school belonging survey, a cartoon depiction of a face matched each Likert-scale response. A red angry face matched “*NO!*,” an orange disturbed face corresponded with “*no*,” a yellow neutral face went with “—,” the greenish-yellow happy face coincided with “*yes*,” and the green excited face was paired with “*YES!*” Participants were given three practice statements and clicked on the face that best matched how they felt about each statement. The statements are: *I like to chew gum*, *I like it when people steal my things*, and *I like going to school*. These questions matched the wording of the survey. The purpose of the practice items were to give participants an opportunity to become familiar with the response procedure and address misunderstanding before starting actual survey items.

Internalizing Symptoms. Because depression and anxiety tend to be comorbid in children and adolescents (Angold, Costello, & Erkanli, 1999; Kovacs & Devlin, 1998), Achenbach (1991) found neither pure depression nor pure anxiety syndromes in a

principal-components analysis of parent, teacher, and self-reports of children and adolescent behavior. Instead, symptoms of depression and anxiety loaded onto the same factor. Thus, the Youth Self Report (YSR; Achenbach & Rescorla, 2001) measures a general *internalizing* factor. It is not the goal of this study to distinguish between symptoms of anxiety and depression, so an overall internalizing score was sufficient. The Teacher Report Form (TRF; Achenbach & Rescorla, 2001) was also used to examine whether there is an association between student and teacher reports of internalizing symptoms. Both questionnaires are part of the Achenbach System of Empirically Based Assessment (ASEBA; [www.aseba.org](http://www.aseba.org)).

Confirmatory factor analyses revealed that the YSR model fit the data well with adolescents from 23 societies (Ivanova et al., 2007a). Similarly, an exploratory factor analysis revealed the TRF model fit the data well with adolescents from 20 societies (Ivanova et al., 2007b). These studies emphasize the utility of these measures in a diverse population. For the present study, Cronbach's alpha was .81 at Time 1 and .88 at Time 2 for the YSR, and .90 and .91 for the TRF, respectively.

For this questionnaire, the angry red face represented "*Not true*," the neutral yellow face indicated "*Somewhat or sometimes true*," and the happy green face matched with "*Very true*." Practice items included *I like hanging out with friends*, *I am scared of snakes*, and *I worry about riding in a school bus*. One question about suicidality was removed from the YSR for this study.

Social Skills and Problem Behaviors. The Social Skills Improvement System (SSIS; Gresham & Elliot, 2008) is a teacher-report assessment of social skills, academic

competence, and problem behaviors in children ages 3-18. Subscales used in this study included Cooperation and Engagement within the social skills domain, and Externalizing and Internalizing within the problem behaviors domain. Teachers report on a 4-point Likert Scale ranging from *Never* to *Almost Always*. The authors indicate high internal consistency among subscales ( $\alpha = .90$ ) and test-retest reliability ranging from .69 to .86 (Gresham & Elliot, 2008). Internal validity studies show intercorrelations of Social Skills and Problem Behaviors from -.42 to -.65. Convergent validity with other similar measures of social skills range from .67 to .75.

Sample statements in the social skill domain include “Interacts well with other children” and “Stays calm when teased.” Problem behavior items include “Cheats in games and activities” and “Fights with others.” In the present study, the following internal consistency statistics were achieved: Engagement ( $\alpha = .92$ ), Cooperation ( $\alpha = .91$ ), Externalizing ( $\alpha = .93$ ), and Internalizing ( $\alpha = .89$ ) at Time 1; Engagement ( $\alpha = .93$ ), Cooperation ( $\alpha = .92$ ), Externalizing ( $\alpha = .66$ ), and Internalizing ( $\alpha = .85$ ) at Time 2.

#### *Preliminary Analyses*

Raw scores are used for cumulative trauma, school belonging, and acculturative stress. Sex-based standard scores were used for Youth Self Report internalizing and Teacher Report Form internalizing; for these data, the ASEBA Assessment Data Manager multicultural supplement (Achenbach & Rescorla, 2007) was also used to standardize scores based on country of origin. Raw scores for the Social Skills Improvement System subscales fell into one of three standardized ranges indicating a specific category

(Gresham & Elliott, 2008): 1 = Below Average, 2 = Average, 3 = Above Average.

Descriptive statistics are presented in Tables 3 and 4.

Before testing hypotheses, and to determine whether students could be combined into one larger group, cohort impact was examined using an exact likelihood ratio chi-square test. No statistically significant association between cohorts and continents of origin was found, indicating similar likelihoods that a student from any given continent of origin would come from Cohort 1 or Cohort 2. Primary variables of interest (i.e. cumulative trauma, sense of school belonging, acculturative stress, student-report internalizing) from each cohort were normally distributed according to Kolmogorov-Smirnov tests. These variables were compared between cohorts using independent samples t-tests and no differences emerged except for Time 2 acculturative stress,  $t(77) = 3.36, p < .001$  (Cohort 1 Mean = 2.56, SD = .59; Cohort 2 M = 2.11, SD = .52, ). For these reasons, data from Cohort 1 and 2 were examined together.

Pearson correlations were preliminarily checked for quadratic relations and none were detected. Considering the relation to other variables in the correlation analyses such as trauma and acculturative stress, the Youth Self Report appears to be a valid indicator of adolescents' internal state. Also, student-report internalizing was available for a greater proportion of the sample than teacher-report internalizing. Therefore, student-report internalizing will be used as the dependent variable in the regression analyses.

For use in regression analyses, the moderating variable, acculturative stress, was dichotomized at the median and assigned a value of either 0 or 1 depending on whether a participant endorsed a relatively weak or strong sense of belonging. Values below 4.44

indicated a weaker sense of school belonging. Similarly, acculturative stress was dichotomized at the median, and values below 2.17 indicated less acculturative stress. Reasoning for dichotomization included overall high sense of school belonging means with relatively low variance; further, the present study intended to compare students reporting relatively higher or lower levels of Time 1 acculturative stress or school belonging as stated in the hypotheses.

It is unknown whether demographic factors are influential to the adjustment experience; however, it is speculated that they could play a role; therefore, they were included as potential covariates in the regression analyses. No differences were found within student sex or number of weeks a student attended the school prior to data collection, but differences emerged for grade level and continent of origin.

Within grade level, a one-way ANOVA indicated a significant difference in trauma between grades five through ten,  $F(5, 85) = 4.22$  ( $p < .01$ ). Tukey's post-hoc test demonstrated that students in grade nine ( $M = 19.10$ ,  $SD = 11.49$ ) reported significantly more traumatic experiences than students in grades five ( $M = 7.50$ ,  $SD = 5.50$ ;  $p < .05$ ) and six ( $M = 7.73$ ,  $SD = 6.00$ ;  $p < .01$ ). Because of this, grade level was entered as a covariate in analyses for Hypothesis 1 and 2. No differences were found within grade level for acculturative stress, school belonging, or internalizing.

Within continent of origin, a one-way ANOVA indicated no differences for school belonging, internalizing, or Time 1 acculturative stress. However, differences emerged for trauma,  $F(3, 88) = 7.66$  ( $p < .001$ ); therefore, continent of origin was entered as a control variable in Hypothesis 1 and 2. Specifically, students from Latin

America/Caribbean ( $M = 14.86$ ,  $SD = 7.76$ ) and students from Asia ( $M = 16.57$ ,  $SD = 12.05$ ) reported significantly more traumatic events than students from Africa ( $M = 5.00$ ,  $SD = 6.75$ ) and students from Greater Middle East ( $M = 4.60$ ,  $SD = 2.63$ ),  $p < .01$  for all comparisons. Differences also emerged for Time 2 acculturative stress,  $F(3, 75) = 5.45$ ,  $p < .01$ . Students from Africa reported relatively lower levels of acculturative stress at Time 2 ( $M = 1.81$ ,  $SD = .48$ ) compared to those from Asia ( $M = 2.57$ ,  $SD = .60$ ),  $p < .01$ , and Latin America/Caribbean ( $M = 2.48$ ,  $SD = .55$ ),  $p < .01$ . Therefore, continent of origin was entered as a covariate in the regression analysis for Hypothesis 3.

## CHAPTER III

### RESULTS

#### *Pearson Correlations*

Linear relations are presented in Tables 6 through 9. Consistent with expectations, a positive correlation was demonstrated between the TRF and SSIS Internalizing at both Time 1 ( $r = .60, p < .001$ ) and Time 2 ( $r = .65, p < .001$ ). Engagement was negatively associated with SSIS Internalizing at Time 1 ( $r = -.37, p < .01$ ) and Time 2 ( $r = -.66, p < .001$ ). As anticipated, Cooperation was positively related to School Belonging ( $r = .26, p < .05$ ). Also consistent with hypotheses and current research, the YSR and TRF were not associated. Social Skills were not correlated with Acculturative Stress, which is contrary to expectations.

#### *Regression Analyses*

Three-step hierarchical linear regression analyses were used to determine the relation between Cumulative Trauma and Time 1 Internalizing and whether Time 1 Acculturative Stress or Time 1 Sense of School Belonging moderated this relation. Also, it was examined whether the relation between Time 1 Acculturative Stress and Time 2 Acculturative Stress was moderated by Time 1 Sense of School Belonging. The moderating variables were dichotomized at the median as described above.

Acculturative Stress. A hierarchical linear regression tested whether the relation between Cumulative Trauma and Time 1 student-report Internalizing was moderated by

Time 1 Acculturative Stress. Because trauma exposure was different within grade levels and continents of origin, these covariates were entered in step one. -Continent of Origin was dummy-coded with Latin America/Caribbean as the reference group. Cumulative Trauma was also entered in step one. In step two, dichotomized Time 1 Acculturative Stress was added. The interaction between Cumulative Trauma and Time 1 Acculturative Stress was entered in step three.

The equation for the full Model 1 was  $Y_1 = \beta_0 + \beta_1(G_1) + \beta_2(D_2) + \beta_3(D_3) + \beta_4(D_4) + \beta_5(T_5) + \beta_6(A_6) + \beta_7(T_5 * A_6) + e$ . In this model,  $Y_1$  represents Time 1 Internalizing scale score on the YSR,  $\beta_0$  represents the constant term,  $G_1$  represents Grade Level,  $D_3$  through  $D_5$  represent dummy-coded Continent of Origin (African, Asian, Middle Eastern, respectively) with Latin America/Caribbean as the reference group,  $T_6$  represents Time 1 Cumulative Trauma raw score,  $A_7$  represents Time 1 Acculturative Stress raw score, and  $\beta_8$  represents the interaction between Cumulative Trauma and Acculturative Stress. Covariates and Cumulative Trauma were entered in step 1.

Table 10 displays beta weights and significance for each step. Contrary to the first hypothesis, the interaction between Cumulative Trauma and Acculturative Stress was not significant. However, a main effect of Acculturative Stress on Internalizing symptoms was found (see Table 10), such that higher levels of acculturative stress predicted higher levels of internalizing symptoms.

To further understand differences between students endorsing relatively higher and lower levels of acculturative stress, a one-way ANOVA tested for differences in trauma exposure and internalizing symptoms using the dichotomization method

previously discussed. Students reporting higher levels of acculturative stress at Time 1 experienced on average six additional traumatic experiences ( $M = 16.11$ ,  $SD = 11.23$ ;  $n = 47$ ) compared to students in the low acculturative stress group ( $M = 10.29$ ,  $SD = 7.48$ ;  $n = 41$ ),  $F(1, 86) = 7.86$ ,  $p < .01$ . Students in the high acculturative stress group also reported significantly higher levels of internalizing ( $M = 61.98$ ,  $SD = 7.41$ ;  $n = 47$ ) compared to students in the low acculturative stress group ( $M = 55.00$ ,  $SD = 7.71$ ;  $n = 41$ ),  $F(1, 86) = 18.71$ ,  $p < .001$ .

School belonging. Next, it was tested whether the relation between Cumulative Trauma and Time 1 Internalizing was moderated by Time 1 Sense of School Belonging. For the same reasons stated above, Grade Level, and Continent of Origin were entered in step one with Cumulative Trauma. Dichotomized Time 1 Sense of School Belonging was added in step two. In step three, the interaction between Cumulative Trauma and Time 1 School Belonging was entered. The equation for the full Model 2 was  $Y_1 = \beta_0 + \beta_1(G_1) + \beta_2(D_2) + \beta_3(D_3) + \beta_4(D_4) + \beta_5(T_5) + \beta_6(B_6) + \beta_7(T_5 * A_6) + e$ . In this model  $B_1$  represents Time 1 Sense of School Belonging.

The interaction between Cumulative Trauma and School Belonging was not significant. A main effect of trauma on internalizing symptoms was found (see Table 11), indicating that more trauma predicted higher levels of internalizing symptoms. Further, a one-way ANOVA tested for differences in traumatic experiences and internalizing between students in the high and low school belonging groups using the dichotomization method previously discussed. On average, students reporting a stronger sense of school belonging at Time 1 also experienced fewer traumatic events ( $M = 10.91$ ;

SD = 7.09; n = 46) compared to students reporting a weaker sense of school belonging (M = 16.12; SD = 12.08; n = 42),  $F(1, 86) = 6.21, p < .05$ . No differences were found between groups for internalizing at Time 1.

Acculturative Stress and School Belonging. A hierarchical linear regression tested whether the relation between Time 1 Acculturative Stress and Time 2 Acculturative Stress was moderated by Time 1 Sense of School Belonging, controlling for Country of Origin. Following Country of Origin and Time 1 Acculturative Stress in step one, dichotomized Time 1 School Belonging was entered in step two. The interaction term generated by multiplying these two variables was entered in step three. The equation for the full Model 3 was  $A_{\text{Time}2} = \beta_0 + \beta_1(D_1) + \beta_2(D_2) + \beta_3(D_3) + \beta_4(A_4) + \beta_5(B_5) + \beta_6(A_4*B_5) + e$ , where  $A_{\text{Time}2}$  represents Time 2 Acculturative Stress raw score.

The interaction between Time 1 Acculturative Stress and Time 1 Sense of School Belonging was not significant. However, a main effect of Time 1 on Time 2 Acculturative Stress was found (see Table 12), demonstrating that higher levels of acculturative stress at Time 1 predicted similarly high levels at Time 2. Additionally, the coefficient for the African group reached statistical significance. Standardized betas are displayed in Table 12. However, because a dummy coded variable cannot be increased by standard deviations, the standardized coefficient cannot be interpreted. Instead, effect size must be determined. To do this, the unstandardized coefficient can be converted to a Cohen's  $d$ , which is represented mathematically by the difference between two means of interest divided by the standard deviation of interest. The unstandardized coefficient for the dummy coded African variable in this model (unstandardized coefficient = -.44)

represents the difference between the mean of the African group and the mean of the reference group (i.e. Latin American/Caribbean) with respect to the other covariates in the model. This value is the numerator in the effect size equation. The denominator is the standard deviation of the dependent variable Time 2 Acculturative Stress (SD = .60) for the 74 participants in the third model. Numerically, the equation is  $-.44/.60 = -.73$ , which represents a medium to large effect size. With respect to the other covariates in the model, this coefficient indicates the predicted Time 2 level of acculturative stress for African students is .73 less than students from Latin America/Caribbean.

## CHAPTER IV

### DISCUSSION

This paper contributes to limited research examining adolescent immigrant and refugee adjustment into the United States. This prospective, short-term longitudinal study examined changes in adolescent adjustment as a function of their stress and social environment. Making sense of certain transitional factors is important for understanding overall well being during the resettlement process.

#### *Acculturative Stress and Migration Difficulties*

In this study the designation of “higher” or “lower” levels of acculturative stress distinguished between students who endorsed overall low to medium frequencies of acculturative difficulties. Most students acknowledged their experiences with acculturative stress on average affected them “rarely” to “sometimes.” This is consistent with literature using the same or similar measures of acculturative stress (e.g. Sirin, Ryce, Gupta, & Rogers-Sirin, 2012; Suarez-Morales, Dillon, & Szapocznik, 2007; Suarez-Morales & Lopez, 2009).

Acculturative stress significantly predicted anxiety and depression when controlling for history of trauma and other relevant covariates. Acculturative stress emerged as a stronger predictor of internalizing than cumulative trauma, and it appeared stable across both time points while controlling for school belonging. Also, the predicted level of Time 2 acculturative stress is significantly higher for students from Latin

America/Caribbean compared to students from Africa. These findings reflect current literature demonstrating acculturative stress is associated with internalizing symptoms (e.g. Ellis, MacDonald, Lincoln, & Cabral, 2008; Park, 2009; Suarez-Morales & Lopez, 2009). These results also indicate that in this sample, students from Latin America/Caribbean may be at risk for the development of higher levels of acculturative stress over time than students from Africa.

Although research indicates that immigrants with a history of trauma exposure also endorse internalizing symptomatology later on (e.g. Papageorgiou et al., 2000), the current study demonstrates that acculturative stress may better account for variation in anxiety and depression than history of trauma during initial adjustment into a new country. This underscores the importance of considering acculturative stress when examining the experience of recently arriving immigrants. While traumatic experiences have an important impact on psychological well being, newly arriving refugee and immigrant adolescents transitioning to a new home may experience adjustment difficulties that are more immediately problematic than their experiences with prior adverse events. Immigration- and discrimination-related stressors require immediate use of adaptive skills and coping mechanisms (Berry, 2003). Adolescent immigrants may use the majority of their psychological resources immediately following migration and during the development of acculturation strategies (Berry, 2003) to cope and adapt to stressors rather than processing traumatic events of the past. Nonetheless, research indicates immigrants with premigration trauma show more severe pathology later on (i.e. three to six years after migration) compared to individuals without histories of trauma (Organista,

Organista, & Kurasaki, 2003). Therefore, trauma may have a stronger impact on mental health outcomes in the long term than on short-term postmigration adjustment, whereas acculturative stress may have a stronger immediate impact following migration.

Although acculturative stress did not exacerbate the effects of trauma on internalizing symptoms in this study, students in the high acculturative stress group reported on average more traumatic events and consistently higher levels of internalizing: more transitional difficulties are related to more severe depressive-anxious symptomatology and a more robust history of adverse events. While research has historically considered the effect of trauma on internalizing symptoms, this finding suggests it may be more appropriate to examine the influence of trauma on acculturative stress. This can be investigated by examining whether acculturative stress mediates the relation between trauma and internalizing symptoms for newly arriving immigrants.

Sense of school belonging did not attenuate the effects of acculturative stress over time. However, the current study measured a snapshot of adolescent immigrant adjustment: Time 2 data was collected either four or nine weeks following Time 1. The third hypothesis in this study is restricted to this time range; therefore, it is unknown whether sense of school belonging has a role in reducing the experience of acculturative stress over a longer period of time. It might be that, regardless of school belonging, acculturative stress follows a characteristic pattern after migration. One study demonstrated that in adolescents emigrating from Russia to the Ukraine, acculturative stress increased in their second year after migration, but decreased in the third year to levels even lower than the first year (Tartakovsky, 2007). A similar trend was found

among first and second generation immigrants in New York (Sirin, Ryce, Gupta, & Rogers-Sirin, 2012).

In the current study acculturative stress was not significantly correlated with school belonging or social skills. Some students with higher levels of acculturative stress also reported a stronger sense of school belonging or stronger social skills. This relation may also be better represented longitudinally. Because acculturative stress captures a broad range of discrimination and immigration related difficulties across multiple postmigration contexts, strong social skills may not preclude a newcomer from a plethora of potentially stressful experiences immediately following migration. Similarly, a strong sense of connectedness to a school community may provide a refreshing albeit brief break from a number of acculturative difficulties that occur outside the school's campus. However, stronger social skills and the formation of close relations with peers and adults may mitigate the impact of acculturative stress over time, for example one to six years postmigration. There is a need for longer-term designs that exam the longitudinal impact of factors such as social skills on acculturative stress.

The development of acculturative stress likely occurs across experiences in multiple systems, from the microsystem (e.g. peers, school, and family) through the macrosystem (e.g. laws, religion, cultural values; Bronfenbrenner, 1977; Berry, 2003). As such, it is unknown whether one context alone (e.g. school) can lessen the experience of acculturative stress; a reduction in acculturative difficulties may occur as a result of changes across multiple factors (e.g. language, culture, basic needs) in a number of contexts (e.g. family, school, laws). While researchers are just beginning to understand

microsystem influences on acculturative stress, an understanding of macrolevel influences on the acculturative process of individuals or family units is not well understood (Chun & Akutsu, 2003). Based on data in the current study, it appears that during initial adjustment there may be less of an influence of social skills and sense of school belonging on acculturative stress than originally hypothesized. The relation between these factors may be better understood longitudinally. Once adolescents have time to adjust to a new culture, those with stronger social skills may experience a more dramatic reduction of acculturative stress because they are better able to navigate a new set of social norms and values, however research using a wider longitudinal time frame is warranted.

#### *School Belongingness and Social Skills*

In this study's sample, the designation of a "weaker" or "stronger" sense of school belonging actually distinguished between students who endorsed medium to high levels of school belonging. No student reported average school belonging below that of a *neutral* rating; all students endorsed on average a medium to high sense of school belonging. Both Time 1 and Time 2 school belonging means are relatively stronger than those found in current literature using the same measure with immigrant samples (e.g. Chun & Dickson, 2011; Kia-Keating & Ellis, 2007; Sánchez, Colón, & Esparza, 2005; Trickett & Birman, 2005), suggesting that students at this particular school have especially well developed relationships with both students and staff.

Although sense of school belonging did not attenuate the effects of trauma on internalizing symptoms, students with a stronger sense of belonging reported

significantly fewer traumatic events than students with a weaker sense of belonging. Future research should examine whether trauma is related to the experience of school belonging such that a history of more adverse events somehow interferes with a sense of connectedness at school. For example, students with more traumatic experiences may have distinct social needs that are less well met by peers and school staff, or the experience of trauma may interfere with the development of close relationships.

As predicted, school belonging was related to social skills, indicating that more cooperative students have a stronger sense of belonging to the school community. Cooperative students may be more skilled at developing relationships with peers and school staff, or teachers and peers view cooperative students more favorably and therefore stronger relationships are developed. Results also demonstrated relations in the predicted direction for teacher-reported engagement and internalizing at both Time 1 and Time 2, suggesting withdrawn students may be less likely to participate in classroom activities. Finally, as predicted and consistent with literature (e.g. Salbach-Andrae, Lenz, & Lehmkuhl, 2009), student and teacher reports of internalizing were not associated. The variety of cultural manifestations of anxiety and depression may play a role in differences between teacher and student reports of internalizing, since teachers are not trained to identify various ways that internalizing symptoms are expressed cross culturally.

#### *School Based Mental Health Screening for Immigrant and Refugee Adolescents*

Screenings can serve as a tertiary prevention strategy to identify high levels of trauma or acculturation difficulties during the first few months of school. Doing so would allow prompt provision of services to students early in their transition to a new

country. This may be necessary considering high levels of acculturative stress might be maintained over time. For example, in this study acculturative stress was stable across both time points, which introduces a problem for adjustment and learning for students high in acculturative difficulties. Acculturative stress was related to anxiety and depression. Providing access to mental health resources in schools might help buffer negative psychological effects of a difficult transition.

These resources might include on-site screenings or meetings at or around the school site during after-school hours that can address acculturation difficulties with families who may not be aware of community resources. It might also be beneficial to provide support groups. For example, knowing that at least half of students in this study experienced natural disasters, death of a loved one, failures in school, and poverty (see Table 4) is an excellent starting point for developing support group topics that are relevant to newly arriving families. Some programs have been developed for use within the classroom (Rousseau, Drapeau, Lacroix, Bagilishya, & Heusch, 2005). Ideally, full-service schools would provide access to mental health care in the building, thereby establishing a central location for support during the difficult transition to a new country (e.g. Ehntholt, Smith, & Yule, 2005; O'Shea, Hodes, Down, & Bramley, 2000; Stein et al., 2002).

School-based research with refugee and immigrant populations is challenging. Numerous possible barriers should be addressed during the planning phases of a school-based mental health screening. Measures must be accessible to students and include clear language and simple self-report procedures. For example, effort was made in this study

to ensure accurate translations of each questionnaire: interpreters were provided surveys prior to data collection and were given opportunities to clarify with the research team. Likert scales involving pictures were previously developed for these measures (Mendez, Nelson-Gray, & Thibeault, 2011), and these pictures aided students unfamiliar with this pattern of responding. Students encountered practice items unique to each survey in order to develop familiarity with phrasing and self-report methods. Students were also encouraged to ask questions throughout the procedure. Overall, pictorial responses in an electronic format, scaffolded items, and the presence of an interpreter can make self-reporting a feasible process for adolescents from a variety of countries and cultures.

Although the screening procedure in this study yielded valuable information, it involved some cost in the form of time away from classroom commitments. It is possible to modify the procedure in order to gather equally relevant and useful data in a shorter amount of time. For example, the relation between internalizing on the Teacher Report Form and Social Skills Improvement System suggests that either one can be used to understand teacher's perspective on student internalizing. This perspective is useful since teachers can be trained to recognize behavioral indicators of adjustment difficulties and ultimately serve as a referral mechanism for at-risk students. Also, the 12-item acculturative stress scale could provide brief, initial insight into the adjustment experience and well being of students, whereas the school belonging measure might provide information about sense of commitment to peers and staff as well as some understanding about social skills.

The Cumulative Trauma Scale provides a wide range of potentially traumatic experiences that could guide a mental health care practitioner in choosing appropriate services. Knowing about students' prior experiences can also inform topics for group therapies, such as interpersonal loss and exposure to trauma. Also, the youth-report internalizing measure provides detailed information about anxious and depressive symptomatology that can be addressed during individual or group sessions. Both measures can be useful in either providing services or guiding the selection of services for recently arriving immigrant youth.

Ideally a screening procedure would involve few interpreters (since interpreters are costly), occur prior to the first day of school, and would not interfere with academic time. Therefore, a procedure ought to occur upon enrollment that might include translated sound bites in the form of audio files by which students can click-and-listen using headphones. This could be utilized at any school across the country in order to inform on-site mental health care practitioners and school personnel about the adjustment experiences of their refugee and immigrant students. In turn, referrals can be made so the adjustment experience is improved.

Results in the predicted direction between teacher and student report measures (e.g. the positive relation between social skills and school belonging) demonstrates that both student and teacher reports are useful for understanding the relation between adjustment-related constructs for this sample of immigrant adolescents. However, a mixed methods model involving both quantitative and qualitative approaches should be used to further inform results. This methodology can lead to richer data and a better

understanding of phenomena in the school context (Powell, Mihalas, Onwuegbuzie, Suldo, & Daley, 2008) and in community-based research with immigrant adolescents (de Anstiss & Ziaian, 2010; Ellis, Lincoln, Charney, Ford-Paz, Benson, & Strunin, 2010). Also, a mixed methods approach to trauma research is needed in order to provide a more comprehensive understanding of trauma histories (Creswel & Zhang, 2009), which could inform treatment. For example, many of the Latino students in this sample experienced a number of adversities during the course of migration. In contrast, African students in this sample migrated to the United States primarily for family reunification purposes, so their migration experience involved exposure to relatively fewer traumas. The social worker provided information about these differential experiences, which are reflected in the results of this study: higher levels of stress and more trauma exposure in Latino students compared to African students. Supplemental quantitative data can enhance qualitative data by enabling more meaningful interpretation.

In other samples of immigrant adolescents across the United States, African students may have migrated for separate reasons which may change the nature of the data. For example, since 2009 the Sudanese nomadic conflicts have resulted in an average of over 1,000 deaths per year and tens of thousands of displaced civilians (Gettleman, 2012). A student who participated in this conflict and later fled the country may have a different adjustment experience than one who left an African nation for family reunification purposes. Research involving immigrants should consider the socio-political context, and this information can be obtained through semi-structured interviews.

Further, the school site for this particular study has a unique setting. The public school itself is composed of 100% immigrant students. Although curriculum is aligned with state standards, pedagogy is adjusted to meet the needs of newly arriving youth. As reflected in the school belongingness results, it appears that most students at this school develop close relationships with peers and teachers. Once students transfer to other schools, their school belongingness—and ultimately their adjustment experience—will vary as they encounter different academic settings, some which may be less attuned to their distinct needs. Generalizability of results from this study should be considered in light of this unique school, and future research should examine the experience of students across time as they transfer to other schools.

#### *Limitations and Future Directions*

This study is constrained by a few limitations. Although power was sufficient for detecting moderating effects across the whole sample, a larger sample could inform generalizability and distinguish nuances in adjustment between students from different countries or cultures. Findings should not be generalized to all immigrant adolescents since many subgroups that are well represented across immigrant or refugee populations in the United States (e.g. Bhutanese, Iraqi, Somali; Martin & Yankay, 2012) were not included in this study. There was not enough statistical power to examine moderating effects by country or continent of origin, therefore it is unknown whether these effects exist by subgroup in this sample. Further, inclusion of other covariates such as family and spiritual factors might enhance understanding of factors impacting adjustment. This might involve obtaining caregiver or sibling reports.

It is ultimately unknown how acculturative stress changes over time, and as immigrant adolescents adjust to a new home their experience of internalizing symptoms and sense of school belonging might also change. The current study utilized a short-term longitudinal design to examine adjustment, although this time range is not sufficient to understand changes beyond nine weeks. Ideally, data would be taken from students over a longer period of time as they transition to new schools and gain experience in a new country. Further, variability for the school belonging measure was relatively low. A greater range of belongingness might be detected as students enroll in schools that are less accommodating to immigrant adolescents.

This study was unfortunately impacted by attrition due to investigations into documentation status of a number of students. Many students who were not assessed at Time 2 did not return to school. It would be valuable to obtain information about these influential experiences since they are inevitably tied to well being. However, a school-based screening is sometimes constrained such that access to other members of the community is limited. A design involving data collection within the community might capture information from a wider variety of participants (e.g. students not attending school regularly or family members). An alternative is to make the school site a central location for data collection or dissemination of information about community resources, thereby creating an opportunity to obtain valuable information and build rapport from less well accessed community members.

Although care was taken to ensure interpreters were well prepared to translate measures, it is unknown to what extent cultural or language barriers impacted students'

self reports. Future studies might supplement the English versions of Likert scales and question stems with students' home language. Finally, this study's sample included caregivers who signed the consent forms and student volunteers who willingly participated in data collection. It is unknown whether there are systematic differences between families who volunteered to be in the study and those who chose not to participate. Effort should be made to better understand reasoning for refusal to participate, and cultural considerations for participation should be addressed.

### *Conclusion*

There is a need to address adjustment difficulties in recently arriving refugee and immigrant adolescents. The first step in meeting this need involves understanding the complex relation between factors related to the transition into a new home. History of trauma and current internalizing symptoms are related to the experience of acculturation difficulties, and it is important to continue to disentangle how these might behave differently for individuals from different regions of origin. Although sense of school belonging is an important factor in students' lives (Cemalcilar, 2010; Suárez-Orozco & Suárez-Orozco, 2001), it is one of many contexts by which newly arriving youth may experience difficulties related to immigration and discrimination. While it is important for school personnel and mental health care researchers and practitioners to work together to address the needs of this unique population, it is equally important to learn from persons bringing new skills, aptitudes, traditions, and values to the host culture.

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## APPENDIX A

### MODIFIED MEASURES

#### Original Cumulative Trauma Scale

*Never*                      *Once*                      *Two times*                      *Three times*                      *Many times*

1. In my life I witnessed or experienced natural disasters, for example, earthquake, hurricane, tornado, or flood.
2. I have experienced life-threatening accidents, for example, motor vehicle accidents.
3. I have been involved in or witnessed a war or combat.
4. I have experienced sudden death of one of my parents, of close friend, or of loved ones.
5. My loved one (for example, parent, close friend) has experienced a life-threatening or permanently disabling event.
6. I have experienced life-threatening illness or permanently disabling event (for example, cancer, stroke, serious chronic illness, or major injury).
7. I have experienced robbery involving a weapon (robbed or mugged).
8. I have witnessed severe assault of acquaintance or stranger (for example, got shot, stabbed, or severely beaten up).
9. I have been threatened to be killed or to be seriously harmed.
10. I have been physically abused, pushed hard enough to cause injury, or beaten up by a caretaker, for example by a parent.
11. I have witnessed or heard one of my parents or caregivers hitting, hurting, and/or threatening to kill my other parent or caregiver.
12. I was led to sexual contact by someone older than me.
13. I was sexually abused, raped, or involved in unwanted sex with one or more persons.
14. I have been jailed and/or tortured.
15. My mother has abandoned or left me, or separated from me when I was young.

16. My father has abandoned or left me, or separated from me when I was young.
17. I have been treated poorly just because of my ethnicity, race, culture, religion, or national origin.
18. My parents went through divorce and/or separation.
19. My race has history of being oppressed, discriminated against, or threatened by genocide.
20. I have experienced a nervous breakdown or felt that I was about to have one due to hassles or chronic stressors.
21. At least one of my parents or siblings was involved in war, combat, or being tortured.
22. I have experienced frequent failures in school.
23. I was uprooted and forced to move from my favorite environment in town, village, or country.
24. I have been physically attacked, beaten up by another stronger person or group of persons, and caused injury.
25. I was lead to sexual contact by one of my caregivers/parents.
26. I was treated poorly by other people (who are not my family) just because of my gender, just because I am a boy or girl.
27. I have experienced serious rejection or failure in my relationships.
28. I have experienced loss of a child or spouse
29. I have experienced employment termination, been laid off, or failed in business.
30. I have remarried.
31. I have experienced being part of poor family with many hardships.
32. I was treated poorly by family members just because of my gender, just because I am a boy or a girl.

## Modified Cumulative Trauma Scale

*Many people have experiences different kinds of events and situations in their lives.*

*These following questions will ask you about some specific events. Please indicate how many times they happened.*

*No    Yes, 1 time    Yes, 2 times    Yes, 3 times    Yes, 4 or more times*

1. In my life I witnessed or experienced natural disasters, for example, earthquake, hurricane, tornado, or flood.
2. I have experienced life-threatening accidents, for example, motor vehicle accidents.
3. I have been involved in or witnessed a war or combat.
4. I have experienced sudden death of one of my parents, of close friend, or of loved ones.
5. My loved one (for example, parent, close friend) has experienced a life-threatening or permanently disabling event.
6. I have experienced life-threatening illness or permanently disabling event (for example, cancer, stroke, serious chronic illness, or major injury).
7. I have experienced robbery involving a weapon (robbed or mugged).
8. I have witnessed severe assault of acquaintance or stranger (for example, got shot, stabbed, or severely beaten up).
9. I have been threatened to be killed or to be seriously harmed.
10. I have witnessed or heard one of my parents or caregivers hitting, hurting, and/or threatening to kill my other parent or caregiver.
11. I have been jailed and/or tortured.
12. My mother has abandoned or left me, or separated from me when I was young.
13. My father has abandoned or left me, or separated from me when I was young.
14. I have been treated poorly just because of my ethnicity, race, culture, religion, or national origin.
15. My parents went through divorce and/or separation.

16. My race has history of being oppressed, discriminated against, or threatened by genocide.
17. I have experienced a nervous breakdown or felt that I was about to have one due to hassles or chronic stressors.
18. At least one of my parents or siblings was involved in war, combat, or being tortured.
19. I have experienced frequent failures in school.
20. I was uprooted and forced to move from my favorite environment in town, village, or country.
21. I have been physically attacked, beaten up by another stronger person or group of persons, and caused injury.
22. I was treated poorly by other people (who are not my family) just because of my gender, just because I am a boy or girl.
23. I have experienced serious rejection or failure in my relationships.
24. I have experienced being part of poor family with many hardships.
25. I was treated poorly by family members just because of my gender, just because I am a boy or a girl.
26. I have experienced another scary or disturbing event not already listed.

## Original Acculturative Stress Inventory for Children

<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Doesn't</i>	<i>Doesn't</i>	<i>Almost Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Bothers Me</i>
<i>Apply</i>	<i>Bother Me</i>	<i>Bothers Me</i>	<i>Bothers Me</i>	<i>Bothers Me</i>	<i>A Lot</i>

1. I often feel like people who are supposed to help are really not paying attention to me.
2. It bothers me when people force me to be like everyone else.
3. Because of the group I am in, I don't get the grades I deserve.
4. Many people believe certain things about the way people in my group act, think, or are, and they treat me as if those things are true.
5. Because of the group I am in, I feel others don't include me in some of the things they do, games they play, etc.
6. I have more things that get in my way than most people do.
7. It's hard for me to tell my friends how I really feel.
8. I feel bad when others make jokes about people who are in the same group as me.
9. It's hard to be away from the country I used to live in.
10. I don't feel at home here in the United States.
11. People think I am shy, when I really just have trouble speaking English.
12. I think a lot about my group and its culture.

## Modified Acculturative Stress Inventory for Children

*Directions: Answer NO or YES to each question below. If you answer YES, decide how often it bothers you. Does it rarely, sometimes, often, or frequently bother you?*

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>No.</i>	<i>Yes.</i>	<i>Yes.</i>	<i>Yes.</i>	<i>Yes.</i>
	<i>It rarely</i>	<i>It sometimes</i>	<i>It often</i>	<i>It frequently</i>
	<i>bothers me</i>	<i>bothers me</i>	<i>bothers me</i>	<i>bothers me</i>

1. Is it difficult to be away from the country you used to live in?
2. Do you feel bad when others make jokes about the people who are from the same country as you?
3. Do you think a lot about people from your country and its culture?
4. Do you often feel like people who are supposed to help are really not paying attention to you?
5. Does it bother you when people force you to be like everyone else?
6. Because of the group you are in, do you get worse grades than you deserve?
7. Do other people have beliefs about the way people from your country act, think, or are, and treat you as if those things are true?
8. Because of the country you are from, do you feel that others don't include you in some of the things they do and games they play?
9. Do you have more things that get in your way than most people do?
10. Is it hard for you to tell your friends how you really feel?
11. Do people think you are shy, when really you just have trouble speaking English?
12. Do you feel like you are NOT at home here in the United States?



## Modified Psychological Sense of School Membership Scale

*Think about your experiences at this school and indicate whether each statement reflects how you really feel.*

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>NO!</i>	<i>no</i>	<i>Neutral</i>	<i>yes</i>	<i>YES!</i>

1. I feel like a real part of (name of school).
2. People here notice when I'm good at something.
3. It is easy for people like me to be accepted here.
4. Other students in this school take my opinions seriously.
5. Most teachers at (name of school) are interested in me.
6. I feel as if I belong here.
7. There's at least one teacher or other adult in this school I can talk to if I have a problem.
8. People at this school are friendly to me.
9. Teachers here are interested in people like me.
10. I am included in lots of activities at (name of school).
11. I am treated with as much respect as other students.
12. I feel very similar to most other students here.
13. I can really be myself at this school.
14. The teachers here respect me.
15. People here know I can do good work.
16. I am glad that I go to this school.
17. I feel proud of belonging to (name of school).
18. Other students here like me the way I am.

APPENDIX B

TABLES

*Table 1. Demographic Variables*

Characteristic	Sample	
	n	%
Sex		
Female	44	47
Male	50	53
Grade Level		
5	8	8
6	12	13
7	15	16
8	17	18
9	31	33
10	10	11
11	1	1
Weeks <sup>b</sup>		
0 – 10	60	64
11 – 20	18	19
21 – 30	12	13
31 or more <sup>c</sup>	4	4

<sup>a</sup>“Do you have a brother or sister who also goes to this school?” <sup>b</sup>Number of weeks from enrollment date to Time 1 <sup>c</sup>All these students were in Cohort 1 and had enrolled during the 2010-2011 academic year; the school decided to enroll them for at least one more semester (Fall 2011) before they transitioned to a typical public school.

*Table 2. Number of Students (and Percentage) by Continent, Region, and Country of Origin*

Location of Origin	Continent	Region	Country
Africa	10 (11)		
Middle Africa		5 (5)	
Central African Republic			2 (2)
Congo			3 (3)
Western Africa		5 (5)	
Ivory Coast			1 (1)
Ghana			1 (1)
Niger			1 (1)
Togo			2 (2)
Asia	31 (33)		
Eastern Asia		1 (1)	
Korea			1 (1)
Southern Asia		11 (12)	
Nepal			11 (12)
South-Eastern Asia		19 (20)	
Cambodia			1 (1)
Myanmar (Burma)			11 (12)
Thailand			7 (7)
Greater Middle East	10 (11)		
Southern Asia		10 (11)	
Pakistan			10 (11)
Latin America and Caribbean	43 (45)		
Caribbean		16 (17)	
Cuba			2 (2)
Dominican Republic			3 (3)
Haiti			6 (7)
Puerto Rico			5 (5)
Central America		24 (26)	
El Salvador			9 (10)
Guatemala			3 (3)
Mexico			12 (13)
South America		3 (3)	
Colombia			1 (1)
Peru			2 (2)
<b>TOTAL</b>	<b>94 (100)</b>	<b>94 (100)</b>	<b>94 (100)</b>

*Note.* Percentages are rounded to the nearest whole number.

*Table 3. Descriptive Statistics for Study Variables*

Variable	Time 1				Time 2			
	n	M	(SD)	Range	n	M	(SD)	Range
Cumulative Trauma	92	13.23	(9.95)	0 - 51	-	-	-	-
School Belonging	88	4.31	(.47)	3.11 - 5.00	79	4.25	(.44)	3.11 - 4.94
Acculturative Stress	88	2.23	(.60)	1.17 - 4.17	79	2.39	(.61)	1.08 - 4.00
YSR Internalizing	88	58.73	(8.28)	35 - 78	79	59.81	(10.01)	35 - 78
TRF Internalizing	72	53.04	(7.98)	37 - 73	50	52.44	(7.74)	37 - 78
SSIS Engagement	70	1.97	(.64)	1 - 3	52	2.15	(.61)	1 - 3
SSIS Cooperation	70	1.94	(.29)	1 - 3	52	2.02	(.31)	1 - 3
SSIS Externalizing	70	2.09	(.28)	2 - 3	52	2.08	(.27)	2 - 3
SSIS Internalizing	70	2.14	(.35)	2 - 3	52	2.13	(.35)	2 - 3

*Note.* Differences in sample size are due to attrition as described in the methods section. Cumulative trauma is not  $n = 94$  because teacher-report data or Time 2 student-report data was obtained from two students who did not complete the trauma checklist at Time 1.

Table 4. Lifetime Exposure to Specific Traumas

% Exposure	Cumulative Trauma Scale Item
65	In my life I witnessed or experienced natural disasters, for example, earthquake, hurricane, tornado, or flood.
63	I have experienced sudden death of one of my parents, close friend, or loved ones.
52	I have experienced frequent failures in school.
48	I have experienced being part of poor family with many hardships.
43	I have experienced life-threatening accidents, for example, motor vehicle accidents.
41	I was uprooted and forced to move from my favorite environment in town, village, or country.
40	My father has abandoned or left me, or separated from me when I was young.
38	I have witnessed severe assault of acquaintance or stranger (for example, got shot, stabbed, or severely beaten up).
36	My loved one (for example, parent, close friend) has experienced a life-threatening or permanently disabling event.
36	I have experienced another scary or disturbing event not already listed.
33	My parents went through divorce and/or separation.
28	I have experienced life-threatening illness or permanently disabling event (for example, cancer, stroke, serious chronic illness, or major injury).
28	My mother has abandoned or left me, or separated from me when I was young.
26	I have been treated poorly just because of my ethnicity, race, culture, religion, or national origin.
24	I have experienced serious rejection or failure in my relationships.
23	I have experienced a nervous breakdown or felt that I was about to have one due to hassles or chronic stressors.
21	I have experienced robbery involving a weapon (robbed or mugged).
16	My race has history of being oppressed, discriminated against, or threatened by genocide.
15	I have been physically attacked, beaten up by another stronger person or group of persons, and caused injury.
14	I have been involved in or witnessed a war or combat.
14	I have been threatened to be killed or to be seriously harmed.
13	I have witnessed or heard one of my parents or caregivers hitting, hurting, and/or threatening to kill my other parent or caregiver.
10	I have been jailed and/or tortured.
10	At least one of my parents or siblings was involved in war, combat, or being tortured.
8	I was treated poorly by other people (who are not my family) just because of my gender, just because I am a boy or girl.
3	I was treated poorly by family members just because of my gender, just because I am a boy or a girl.

Note. n = 92.

*Table 5. Means (M) and Standard Deviations (SD) for Variables Demonstrating Statistically Significant Differences Between Girls and Boys*

Variable	n	Girls		Boys	
		M	SD	M	SD
TRF Internalizing Time 1	72	55.44	8.96	51.13	6.60
TRF Internalizing Time 2	50	54.36	9.00	50.52	5.78
SSIS Externalizing Time 1	70	2.00	.00	2.15	.37
SSIS Externalizing Time 2	52	2.00	.00	2.15	.37
SSIS Internalizing Time 1	70	2.26	.45	2.05	.23
SSIS Internalizing Time 2	52	2.23	.43	2.04	.20
SSIS Engagement Time 2	52	1.96	.60	2.35	.56

*Note.* See Results for F- and p-values.

Table 6. Pearson Correlations for Study Variables at Time 1

	1	2	3	4	5	6	7	8	9
1. Trauma	1								
2. School Belonging	-.42***	1							
3. Acculturative Stress	.38***	.01	1						
4. YSR Internalizing	.23*	-.05	.40***	1					
5. TRF Internalizing	.12	-.17	.17	.14	1				
6. SSIS Engagement	-.22	.11	.21	-.08	-.55***	1			
7. SSIS Cooperation	-.01	.26*	.04	-.21	-.25*	.31**	1		
8. SSIS Externalizing	-.11	-.10	-.03	-.25*	.07	-.07	-.12	1	
9. SSIS Internalizing	.03	-.12	.17	.14	.60***	-.37**	-.20	.17	1

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

Note. YSR = Youth Self Report; TRF = Teacher Report Form; SSIS = Social Skills Improvement System.

*Table 7. Sample Size for Pearson Correlations at Time 1*

Variable	1	2	3	4	5	6	7	8
1. Trauma								
2. School Belonging	88							
3. Acculturative Stress	88	88						
4. YSR Internalizing	88	88	88					
5. TRF Internalizing	70	66	66	66				
6. SSIS Engagement	68	64	64	64	70			
7. SSIS Cooperation	68	64	64	64	70	70		
8. SSIS Externalizing	68	64	64	64	70	70	70	
9. SSIS Internalizing	68	64	64	64	70	70	70	70

*Note.* Differences in sample size are due to attrition as described in Methods.

Table 8. Pearson Correlations for Study Variables at Time 2

	1	2	3	4	5	6	7	8	9
1. Trauma	1								
2. School Belonging	-.28*	1							
3. Acculturative Stress	.53***	-.21	1						
4. YSR Internalizing	.16	-.06	.19	1					
5. TRF Internalizing	.21	.22	.10	-.21	1				
6. SSIS Engagement	-.15	.12	-.20	-.06	-.46***	1			
7. SSIS Cooperation	-.21	.26	-.17	-.03	-.36**	.29*	1		
8. SSIS Externalizing	.16	-.21	.04	-.18	-.08	.05	-.02	1	
9. SSIS Internalizing	.19	.22	.20	-.14	.65***	-.66***	-.21	-.11	1

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

Note. YSR = Youth Self Report; TRF = Teacher Report Form; SSIS = Social Skills Improvement System.

*Table 9. Sample Size for Pearson Correlations at Time 2*

Variable	1	2	3	4	5	6	7	8
1. Cumulative Trauma								
2. School Belonging	78							
3. Acculturative Stress	78	79						
4. YSR Internalizing	78	79	79					
5. TRF Internalizing	49	43	43	43				
6. SSIS Engagement	51	45	45	45	50			
7. SSIS Cooperation	51	45	45	45	50	52		
8. SSIS Externalizing	51	45	45	45	50	52	52	
9. SSIS Internalizing	51	45	45	45	50	52	52	52

*Note.* Differences in sample size are due to attrition as described in Methods.

*Table 10. Time 1 Student-Report Internalizing Symptoms Regressed onto Cumulative Trauma Exposure and Time 1 Acculturative Stress*

Model	$\beta$	$R^2$	$\Delta R^2$
Step 1		.11	.11
Grade level	.07		
African	.10		
Asian	.13		
Middle Eastern	.25*		
Trauma	.29*		
Step 2		.23***	.12***
Grade level	.08		
African	.11		
Asian	.15		
Middle Eastern	.18		
Trauma	.15		
Acculturative Stress	.37***		
Step 3		.23**	.00
Grade level	.08		
African	.11		
Asian	.15		
Middle Eastern	.18		
Trauma	.17		
Acculturative Stress	.39*		
Trauma X Acculturative Stress	-.03		

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

*Note.*  $n = 88$ .

*Table 11. Time 1 Student-Report Internalizing Symptoms Regressed onto Cumulative Trauma Exposure and Time 1 Sense of School Belonging*

Model	$\beta$	$R^2$	$\Delta R^2$
Step 1		.11	
Grade level	.06		
African	.10		
Asian	.13		
Middle Eastern	.25*		
Trauma	.29*		
Step 2		.11	.00
Grade level	.07		
African	.10		
Asian	.13		
Middle Eastern	.25*		
Trauma	.28*		
School Belonging	-.01		
Step 3		.13	.02
Grade level	.08		
African	.06		
Asian	.12		
Middle Eastern	.20*		
Trauma	.35*		
School Belonging	.20		
Trauma X School belonging	-.23		

\* $p < .05$ .

Note.  $n = 88$ .

Table 12. Time 2 Acculturative Stress Regressed Onto Time 1 Acculturative Stress and Time 1 Sense of School Belonging

Model	$\beta$	$R^2$	$\Delta R^2$
Step 1		.32***	.19***
African	-.23*		
Asian	.17		
Middle Eastern	-.16		
Acculturative Stress	.41***		
Step 2		.32***	.00
African	-.23*		
Asian	.17		
Middle Eastern	-.16		
Acculturative Stress	.41***		
School Belonging	.01		
Step 3		.33***	.01
African	-.24*		
Asian	.17		
Middle Eastern	-.16		
Acculturative Stress	.48***		
School Belonging	.29		
Stress X Belonging	-.31		

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

Note.  $n = 74$ .