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Immigration Trauma among Hispanic Youth: Missed by Trauma Assessments and Predictive of Depression and PTSD Symptoms

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Abstract

Few quantitative studies have examined the rate of exposure to traumatic events during immigration among Hispanics or its relation to mental health outcomes. Failing to capture traumatic events that occur during immigration may impede investigations of trauma and related mental health disparities with Hispanics. In order to better understand the need for immigration-related trauma assessment, interviews were conducted with 131 immigrant Hispanic youth. First, youth completed a comprehensive trauma assessment interview. Items were added to the interview to assess if each traumatic event occurred during the process of immigration. An immigration-focused module was then added to the end of the assessment. A substantial minority of youths reported experiencing a traumatic event during immigration ($n = 39$; 29.8%). The majority of these were not captured by the standard trauma assessment ($n = 32$; 82.1% of those with in-transit trauma). Of these, the majority stated that the process of immigration itself was traumatic, but had not indicated experiencing any event assessed during the standard trauma assessment ($n = 28$; 87.5% of those with unidentified in-transit trauma). The traumatic events that were not captured during the standard trauma assessment significantly predicted both depression ($p < .001$) and PTSD symptoms ($p = .012$). Results suggest that standard trauma assessments may not capture traumatic events that occur during immigration for Hispanic youth. Failing to capture these events during trauma assessment may have large implications for research on trauma-related mental health disparities, as the events that were not captured overlapped significantly with depression and PTSD.

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Spanish Abstract

Pocas investigaciones cuantitativas han examinado la tasa de trauma que ocurre entre Hispanos durante el proceso de inmigración a los Estados Unidos. Cuando evaluaciones de trauma no capturan trauma de inmigración, puede impedir investigaciones de disparidades de salud mental y trauma para Hispanos. Para entender mejor la necesidad de incluir componentes de inmigración en evaluaciones de trauma, se entrevistaron 131 adolescentes Hispanos. Primero, los adolescentes cumplieron una entrevista comprensiva y estándar de trauma. Se añadieron preguntas a la entrevista para determinar si el evento ocurrió durante inmigración. Luego, se añadió una sección enfocada en inmigración. Una menoridad sustancial de adolescentes indicó trauma durante inmigración ($n = 39$; 29.8%). La mayoría de estos casos no se capturaron durante la evaluación estándar ($n = 32$; 82.1% de los quienes indicaron trauma durante inmigración). De estos, la mayoría indicaron que fue el proceso de inmigración que fue traumático ($n = 28$; 87.5% de los quienes no indicaron trauma durante la evaluación estándar). Los eventos los cuales no se capturaron en la evaluación estándar correlacionaron con síntomas ambos de depresión ($p < .001$) y estrés postraumático ($p = .012$). Los resultados sugieren que evaluaciones estándares de trauma no capturan eventos traumáticos que ocurren durante inmigración para adolescentes Hispanos. Además, el no capturar estos eventos tal vez tiene implicaciones para investigaciones de disparidades de trauma y salud mental, porque los eventos que no se capturaron correlacionaron con depresión y el estrés postraumático.

Keywords

Immigration; trauma; Latino youth; depression; PTSD

Across waves of immigration, Hispanic immigrants come to the U.S. for varied reasons, often escaping poverty or political conflict in their native countries; however, the process of immigration can be stressful and even potentially traumatic, particularly for immigrants who arrive to the U.S. undocumented (Arroyo, 1998; Deluca, McEwen, & Keim, 2010; Foster, 2001; Pumariega, Rothe, & Pumariega, 2005; Sladkova, 2007; Smart & Smart, 1995). Though the overwhelming majority of this work is qualitative or anecdotal, arriving in the U.S. via the U.S.-Mexico land border may be accompanied by threats of violence, kidnapping, physical or sexual assaults, severe dehydration, and weather exposure (Arroyo, 1998; Deluca, McEwen, & Keim, 2010; Foster, 2001; Sladkova, 2007). Moreover, this qualitative evidence suggests that many immigrants set out from Mexico and Central America anticipating exposure to these kinds of threats of harm (Deluca et al., 2010; Sladkova, 2007). As such, many of the events highlighted by qualitative studies of immigrants' experiences would qualify as traumatic, particularly for those who come into the U.S. undocumented, via a land border. Although definitions vary, the most current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013) defines trauma as having exposure to actual or threatened death, serious injury or a threat to physical integrity (this definition is similar to previous iterations, except that previous iterations of the DSM also stipulated that traumatic experiences involved reactions of intense fear, helplessness, or horror). The umbrella term in-transit trauma refers to the various types of traumatic events that may occur during the process of immigration (Foster, 2001).

Preliminary quantitative work largely coheres with qualitative evidence and suggests that traumatic experiences frequently accompany the process of immigration (Gudiño et al., 2011; Perreira & Ornelas, 2013). In one study, participants were asked if they experienced a variety of potentially traumatic events before, during, and after immigrating to the U.S. While limited information is provided on what types of in-transit traumatic events youth experienced during immigration (specific percentages were only offered for "being robbed", "being physically attacked", "being accidentally injured" and "getting sick"), approximately one-fourth of children (24%) reported in-transit traumatic experiences (Perreira & Ornelas, 2013). Further, the majority of youth who reported any trauma exposure (85%), reported exposure to at least one event intransit. Thus, in-transit trauma appears to represent a large portion of traumatic events experienced by Hispanic youth. Also, while the study provides important initial insights into intransit trauma, it did not use a standard trauma assessment and no validity information is available on the instrument used. In a separate study, Gudiño and colleagues (2011) utilized a modified form of a standardized assessment of violence exposure to assess in-transit violence. In this study, participants completed the Exposure to Violence Scale (EVS; Singer, Anglin, Song, & Lunghofer, 1995), which assesses the frequency of violence exposure on a 0 to 3 scale, with zero representing "never" and 3 representing "very often". The EVS was modified such that items asked participants to rate how often each type of violence had occurred in the U.S., during immigration, and in their country of birth. Approximately half of immigrant participants reported experiencing violence during immigration (51.8%). This suggests that in-transit violence exposure may be common for immigrant youth; however, it remains unclear how many of these events would be captured by standard trauma assessments (e.g., the original EVS) and how often non-violent forms of traumatic events occur during immigration. Further, this study did not assess the relation between in-transit violence and mental health outcomes, though it did suggest that overall lifetime violence exposure predicts multiple mental health symptoms.

In-transit Trauma and Trauma Assessment among Hispanics

Given the potential frequency of in-transit trauma among Hispanic immigrants, it is imperative that trauma assessment methods capture in-transit traumatic events. While many current trauma assessment methods specifically address some of the traumatic events commonly associated with immigration to the U.S. (e.g., exposure to violence), with the exception of the modified EVS used by Gudiño and colleagues (2011) which focused exclusively on violence exposure, they do not specifically assess if these events occur in the immigration context. For example, exposure to violence may be reported, but not whether the violence occurs in-transit to the U.S. or how often this in-transit violence occurs. Most evidence suggests that accurate trauma assessments require behaviorally-specific questions (e.g., Resnick et al., 1993). In addition, the use of behaviorally-specific questions covering a comprehensive range of potentially traumatic events has led to identification of higher rates of trauma exposure and PTSD among civilian samples (Kilpatrick et al., 1987) and such trauma assessment methods have become standard. Given these results and that immigration itself may represent a traumatic event due to the significant risks and dangers anticipated by immigrants, assessments specific to in-transit trauma may be necessary for capturing traumatic events that occur during immigration. Nevertheless, studies have yet to

systematically examine how often in-transit trauma is captured by standard trauma assessments (i.e., assessments that do not address in-transit trauma, but are otherwise behaviorally-specific and comprehensive).

Trauma Exposure among Hispanic Youth

Although it remains unclear how often standard trauma assessments capture in-transit trauma, studies using standard trauma assessment methods indicate Hispanic youth are disproportionately at risk of experiencing trauma compared to non-Hispanic white youth (Crouch, Hanson, Saunders, Kilpatrick, & Resnick, 2000; McLaughlin et al., 2013). Additionally, Hispanic youth may experience more types of traumatic events (e.g., experience physical abuse AND witnessing community violence) than non-Hispanic white youth (Andrews et al., 2015). Differences in trauma exposure between non-Hispanic white youth and Hispanic youth persist even when controlling for socioeconomic variables (Andrews et al., 2015; Crouch et al., 2000).

In-transit trauma may explain some of the differences between Hispanic youth and white youth, given that immigrants make up a substantially larger portion of Hispanic youth relative to non-Hispanic white youth (U.S. Census Bureau, 2007). In fact, up to 34% of Hispanic adolescents and young adults identify as immigrants (Pew Research Center, 2013). It's unclear, however, if differences between Hispanic and non-Hispanic white youth could be attributed to higher trauma exposure among immigrants because in addition to not directly assessing in-transit trauma, studies of trauma exposure prevalence among youth do not typically examine immigrant status (e.g., Crouch et al., 2013). In one of the few studies to compare trauma exposure among immigrants and non-immigrants, McLaughlin and colleagues (2013) found that immigrant youth from various racial/ethnic backgrounds experience most types of traumatic events at approximately equal rates relative to U.S.-born youth. As a notable exception, they did find that immigrant youth more frequently endorsed "other" traumatic events that were not captured with behaviorally-specific items, though it is unclear whether or how frequently this item captured intransit trauma. Without determining if standard trauma assessment methods capture in-transit trauma, comparisons of Hispanic and non-Hispanic white youth may underestimate the difference between these two groups. Thus, in addition to potentially providing more accurate assessments of trauma exposure among immigrant Hispanic youth, directly assessing in-transit trauma may provide insights into trauma exposure disparities for Hispanic youth in general.

Trauma Assessment and Mental Health

Accurate assessments of trauma exposure of Hispanic immigrants also directly impact the understanding of mental health for Hispanics overall. The vast literature on trauma exposure and mental health suggests exposure to traumatic events strongly and positively predicts the development of symptoms across multiple mental health domains (e.g., Greeson et al., 2011). Posttraumatic stress disorder (PTSD) and depression represent the disorders most frequently connected to event exposure (e.g., Kilpatrick et al., 2003), but risky sexual behavior (Green et al., 2005), substance abuse (Ullman, Relyea, Peter-Hagene, & Vasquez, 2013), and sleep difficulties (Babson & Feldner, 2010) have all been linked to trauma

exposure. The connection between trauma exposure and adult mental health appears stronger when potentially traumatic events occur during childhood (Becker, Stuewig, McCloskey, 2010; Chen et al., 2010; Cloitre et al., 2009; Kaukinen & DeMaris, 2005; Nishith et al., 2000; Ogle, Rubin, & Siegler, 2013). Those who experience traumatic events in childhood also appear more likely to experience additional traumatic events than those who first experience potentially traumatic events in adulthood (Amstadter et al., 2011; Elwood et al., 2011).

Although less often explored with primarily Hispanic samples, the relations between potentially traumatic events and mental health disorders appear similar among Hispanics and non-Hispanic groups (Cuevas et al., 2010; Rodriguez et al., 2008). Further, some evidence suggests Hispanics may experience more mental health difficulties following potentially traumatic exposure to natural and man-made disasters than non-Hispanic Whites (Galea et al., 2002; Perilla, Norris, & Lavizzo, 2002). Multiple studies have suggested that violence significantly predicts mental health disorders among Hispanic children (Gudiño et al., 2011; Kataoka et al., 2009). To date, studies examining immigration trauma and mental health have focused on pre-immigration trauma, such as exposure to political violence (Fortuna, Porche, & Alegria, 2008). One study examining in-transit trauma among 270 immigrant Hispanic youth suggested that in-transit trauma significantly predicts PTSD symptoms (Perreira & Ornelas, 2013). While these results provide a critical first step in understanding in-transit trauma, substantial gaps remain in understanding in-transit trauma and the need for including it in standard trauma assessments. It remains unknown how well in-transit trauma predicts mental health symptoms above and beyond traumatic events that are already assessed during standard trauma assessments.

Current Study

In summary, relatively little is known about in-transit trauma and its potential mental health correlates, particularly among Hispanic youth. Preliminary evidence suggests in-transit positively predicts mental health difficulties commonly associated with trauma exposure (Perreira & Ornelas, 2013). Still, the frequency with which standard trauma assessments capture this type of trauma remains unknown. Additionally, the relative impact of in-transit trauma on mental health symptoms compared with other traumatic events has yet to be explored. As a primary aim, the current study sought to take the first steps in determining the need for including in-transit trauma in assessments of traumatic events among Hispanic youth. We addressed this primary aim in three ways. First, we examined the frequency with which standard trauma assessments failed to capture in-transit traumatic events that could be categorized under other specifically assessed traumatic event types (e.g., violence exposure during immigration). Second, we examined the frequency with which youth reported the immigration process itself as traumatic. Finally, we examined the relation between in-transit trauma and the two most common mental health sequelae of trauma exposure: depression and PTSD symptoms.

Method

Participants

As part of a larger study of 204 children who self-identified as Hispanic and from immigrant families (i.e., at least one parent had immigrated to the U.S.), 131 first-generation immigrant youth (herein referred to as immigrant youth) were interviewed regarding exposure to traumatic events and mental health symptoms. Potential participants were recruited through schools, primary care agencies, mental health clinics, churches and other organizations that served a rural Hispanic community in a southern state that had experienced substantial new growth in the area's Hispanic population similar to many other southern states (e.g., Alabama, North Carolina, South Carolina or Tennessee (Stepler & Lopez, 2014)). Caregivers were solicited through the use of flyers, oral presentations, discussions with community leaders, and radio announcements. In addition to direct recruitment through project staff, a form of snowball recruitment was utilized through the parents of child participants assisting with recruitment by recommended the study to friends, family, and neighbors. As a primary aim of the larger study was to examine in-transit trauma, immigrant youth were oversampled relative to non-immigrant youth. Recruitment methods utilizing existing community organizations and in-person, community-based solicitation have been found to be effective for reaching immigrant Hispanic populations (Rodriguez, Rodrigues & Davis, 2006). All items presented within the current study were completed with the youth participants. Ages ranged from 9 to 17 years, with an average age of 12.46 (SD=2.50) and 54.4% of the sample were boys. The majority of participants, 90.8% (n = 119), indicated Mexico as their place of birth. The average amount of time immigrant participants reported residing in the United States was 4.53 years (SD=3.19). Approximately half of the interviews were conducted in English (n = 69, 52.7%). The majority of interviews were conducted in the participants' homes (64.2%). Additional locations included the child's school (9.8%) and recruitment sites, which included a community-based medical clinic, a community-based mental health clinic, and churches (12.3%). Table 1 presents demographic information.

Measures

History of exposure to potentially traumatic events, mental health disorders (e.g., PTSD, major depressive episode), and demographic characteristics were assessed utilizing a highly structured interview based on interviews used in the National Survey of Adolescents (NSA; Kilpatrick et al., 2000; Kilpatrick et al., 2003) and the Navy Family Study (Banyard, Williams, Saunders, & Fitzgerald, 2008). The interview has evidenced good concurrent validity across PTSD, depression, and estimates of child victimization (Kilpatrick et al., 2000). A Spanish version of the NSA interview was available. For the few additions/ modifications to the NSA interview that required translation into Spanish (e.g., questions assessing in-transit trauma exposure), a forward-backward translation procedure was conducted by bilingual and bicultural staff and principal investigator, who then met as a group to resolve any discrepancies between the translations. The principal investigator and most project staff had training backgrounds in psychology and included individuals with ethnic backgrounds and nationalities representative of the study sample.

Child victimization history.—Exposure to traumatic events was assessed utilizing a structured interview that was nearly identical to the NSA trauma assessment interview (Kilpatrick et al., 2000). The original NSA interview includes behaviorally-specific questions describing 40 different types of victimization and follow-up questions regarding each of these events (e.g., how old were you when this occurred?). The original NSA interview is organized around six categories of trauma exposure: sexual abuse, physical abuse, other physical assaults, witnessing domestic violence, witnessing community violence, and non-assault traumas. The original NSA trauma assessment interview has demonstrated good internal consistency (α = .82; López et al., 2016). In the current sample of immigrant Hispanic youth, the NSA interview items demonstrated acceptable internal consistency (α = .70). For the current study, the only modifications to the NSA interview were assessments of in-transit trauma. The categories from the original NSA and the in-transit trauma assessments are described in Table 2.

To assess in-transit trauma, two assessment strategies were added to the NSA interview. The first assessment strategy was designed to identify cases of in-transit trauma captured by the NSA interview. To accomplish this, participants were asked if a traumatic event occurred during immigration following the endorsement of any traumatic event from the original NSA interview. During this portion of the trauma assessment, youth were only asked about in-transit trauma if they first endorsed exposure to one of the original 40 types of victimization. The second intransit trauma strategy consisted of an additional module at the end of the NSA interview that specifically addressed in-transit trauma. The additional in-transit trauma module asked all youth if they experienced several types of traumatic events during the immigration process. Children were first asked if they witnessed or experienced sexual assault, if they witnessed or experienced physical violence, and if they witnessed another person being injured during immigration. This was done to determine how may in-transit traumatic events occurred that could be categorized under one of the original categories of victimization.

In order to determine how often youth found the process of immigration itself to be traumatic, youth were asked if they feared they or someone else might die or be seriously injured during immigration. This was done to mirror criterion A1 from the DSM-IV definition of a traumatic event (i.e., that an event contains actual or threatened serious harm to oneself or a close other). DSM-IV also includes a second criterion (criterion A2) for the definition of a traumatic event, which we also assessed. The second criterion indicated that the event needed to be accompanied by feelings of intense fear, helplessness or horror (APA, 2000); however, when determining whether immigration was traumatic we did not apply this criterion. Research suggests that the first criterion (criterion A1) is sufficient (e.g., Karam et al., 2010). Also, criterion A1 alone closely matches DSM-5 criteria defining a traumatic event (APA, 2013). In cases in which youth met this criterion (i.e., reported fear for their safety or the safety of another), but denied experiencing other in-transit traumatic events that would be included in the original NSA interview (e.g., witnessing violence), we refer to this as immigration process trauma and conceptualized this as indicating that immigration itself was a traumatic event. Table 3 presents information regarding the endorsement of different subtypes of in-transit trauma.

In order to more clearly distinguish between the effects of in-transit trauma and other forms of traumatic events, only youth who reported immigration process trauma but had not reported any other victimization type during immigration were coded as having experienced intransit trauma for analyses involving mental health outcomes. In analyses of mental health outcomes, youth who reported experiencing immigration process trauma and traumatic events that did not occur during immigration (i.e., they denied that the event occurred during immigration) both immigration trauma and the other event were coded as present.

PTSD and Major Depression.—Mental health symptoms, including symptoms of PTSD and major depressive episode (MDE), were assessed utilizing a modification of the Navy Family Study and NSA PTSD and major depression modules. As the study was conducted prior to the release of DSM-5 criteria, DSM-IV items for depression and PTSD were retained from the Navy Family Study and the NSA. Items for both of these interviews map directly onto diagnostic criteria for MDE and PTSD. Each potential symptom listed as part of diagnostic criteria had a corresponding assessment item. Psychometric data based on the use of PTSD and Depression modules in other studies reveal adequate internal consistency (Cronbach's alpha = .87 and .85, respectively) (Kilpatrick et al., 2003) and convergent validity (Boscarino et al., 2004; Kilpatrick et al., 2000). For the purposes of the current study, youth were asked if they had ever experienced each symptom. As such, the symptoms represent lifetime symptoms. Symptoms were either coded as "present" or "absent". For both depression and PTSD, a symptom severity score was created by summing the number of symptoms participants had endorsed experiencing in their lifetime. Both depression (α = .85) and PTSD (α = .91) symptom sums demonstrated good internal consistency with the current sample. Table 3 contains additional descriptive information regarding PTSD and depression symptoms.

Procedure

Potential participants were recruited through presentations conducted at local schools, churches, migrant farm-worker camps, and community agencies serving large numbers of Hispanic families. Recruitment also included flyers that were circulated at large social functions in the Hispanic community and radio announcements on Spanish radio stations. Participants self-identified as being Hispanic, in order to participate. In addition, immigrant status was defined as a child having been born outside of the United States.

Interested participants who responded to one of the recruitment methods were informed about the study via telephone and scheduled an in person interview. Trained research assistants interviewed children and caregivers in their homes, schools, churches, community-based organizations, and a community mental health clinic in the Southeastern United States. As noted above, interviews were conducted in English or in Spanish, based on participants' preference, utilizing a structured interview. Youth were interviewed individually, and caregivers were interviewed separately. Primary caregivers provided informed consent, and children provided verbal assent. Procedures for reporting instances of child abuse that had previously been unreported included having a licensed psychologist call participants to conduct a more in-depth assessment and report instances of child abuse to appropriate authorities if necessary. No adverse events were reported during the interviews.

Analytical Approach

Descriptive analyses of in-transit trauma exposure among the current sample of immigrant Hispanic youth are presented first. In order to examine the degree to which in-transit trauma that is not captured by trauma assessments predicts depression and PTSD symptoms, a series of regression analyses were conducted. Depression and PTSD symptom sums were the dependent variables. The same predictors were used in models predicting depression and PTSD symptoms. Initial goodness of fit analyses comparing negative linear, negative binomial, and poisson distributions suggested that negative binomial analyses would be most appropriate for predicting both depression and PTSD symptom sums. As a result, all models were examined with negative binomial analyses. Age and gender were entered as control covariates in all analyses. In the first models, exposure to the six categories of victimization included in prior trauma assessments (sexual assault, physical assault, child physical abuse, witnessing domestic violence, witnessing community violence, and non-assaultive trauma) were examined as predictors. Each potentially traumatic event was dichotomously coded as "0" indicating not present and "1" indicating present. In the second models, in-transit trauma was entered. In order to enhance the interpretability of findings from negative binomial analyses, in-transit trauma was only coded as present if the youth endorsed that the experience of immigration was traumatic and had not endorsed experiencing any other type of potentially traumatic event during immigration. That is, the final predictor included only instances of in-transit trauma that could not be attributed to any of the traumatic events that were captured previously by the trauma assessment. If participants initially reported an instance of in-transit trauma during the original NSA-R trauma assessment, that instance was still coded as part of the trauma type under which it was reported (e.g., physical assault that was reported during the physical assault module was still coded as physical assault even if it occurred during immigration). This coding is utilized only for analyses of depression and PTSD symptoms so that the in-transit trauma predictor tests the significance of the unique forms of immigration trauma that are not captured by trauma assessments. As a result, not all forms of in-transit trauma reported in descriptive analyses were coded as part of the in-transit trauma predictor—only those forms of in-transit trauma that could not be coded as any other type of traumatic event. This distinction is made by referring to the types of immigration trauma included in depression and PTSD analyses as immigration process trauma, a label that is used in descriptive and regression tables.

Results

Prevalence of In-Transit Trauma

Prevalence rates for exposure to traumatic events, including in-transit trauma, are presented in Table 3. A total of 39 youth (29.8%) reported experiencing a traumatic event of any type during immigration. Of these, seven youth (5.3% of the overall sample and 17.9% of intransit trauma exposed youth) reported these events during the standard trauma assessment. The remaining 32 (24.4% of the overall sample and 82.1% of the in-transit trauma exposed sample) only reported in-transit trauma during the immigration specific portion of the trauma assessment. Four of these youth (3.1% of the overall sample and 10.3% of the in-transit trauma exposed youth) reported new instances of witnessing violence. That is, these youth reported event types that were assessed as part of the original

NSA trauma assessment, but only reported them during the in-transit trauma module. The remaining 28 (21.4% of the overall sample and 71.8% of the in-transit trauma exposed sample) reported the process of immigration itself was traumatic (i.e., they feared death or serious injury to themselves or loved ones during immigration), but did not report any other traumatic events occurred during immigration. We refer to this as immigration process trauma. Table 4 presents the overlap between in-transit trauma, including immigration process trauma, and other types of traumatic events.

In-transit Trauma as a Predictor of Major Depression and PTSD Symptoms

PTSD symptoms.—Overall, the first model significantly predicted PTSD symptoms, χ^2 (7) = 32.71, $p < .001$. Among individual predictors, physical assault exposure, $b = 0.67$, $SE = 0.28$, $p = .018$, and child physical abuse, $b = 0.51$, $SE = 0.26$. $p = .043$) positively predicted PTSD symptoms. When immigration process trauma was added to the model, the overall model remained significant, χ^2 (8) = 40.85, $p < .001$. Among individual predictors, immigration process trauma significantly predicted PTSD symptoms, $b = 0.82$, $SE = 0.29$, $p < .001$. Following the addition of immigration process trauma to the model, physical assault exposure ($p = .086$) and physical abuse exposure ($p = .055$) were no longer significant. Additional details of negative binomial analyses of PTSD symptom counts are presented in Table 5.

Depression symptoms.—Overall, the first model significantly predicted depression symptoms, χ^2 (7) = 21.58, $p = .003$. Among individual predictors, no variable significantly predicted depression symptoms (p-values < .10). When immigration process trauma was added to the model, the overall model remained significant, χ^2 (8) = 32.16, $p < .001$. Among individual predictors, only immigration process trauma significantly predicted depression symptoms, $b = 0.91$, $SE = 0.26$, $p < .001$. Additional details of negative binomial analyses of depression symptoms are presented in Table 6.

Discussion

This study sought to evaluate the need for immigration-specific trauma assessment in capturing in-transit trauma, when used in conjunction with well-accepted, structured, and behaviorally-specific standard trauma assessments. In general, results from the current study suggest most in-transit trauma was not captured by standard trauma assessments. Notably, these results suggest the process of immigration itself may be a potentially traumatic event and immigration-specific assessments may be necessary for capturing immigration as a traumatic event. Further, experiencing the process of immigration as a traumatic event was not captured by standard assessments and was highly associated with depression and PTSD symptoms. Thus, studies evaluating the relation between trauma and mental health may not fully capture this relation among immigrant Hispanic youth without including immigration-specific trauma assessment. Studies of trauma prevalence may underestimate the frequency of trauma exposure among immigrant Hispanic youth, a substantial portion of the overall Hispanic youth population.

In-Transit Trauma in Standard and Immigration-Specific Assessments

Similar to one previous quantitative study of in-transit trauma (Perreira & Ornelas, 2013), almost 30% of immigrant youth reported trauma events associated with the immigration process, though this is notably lower than the prevalence of in-transit violence reported by Gudiño and colleagues (2011). Unlike previous studies that did not assess how often in-transit trauma is captured by standard assessments, this study suggests that the overwhelming majority of youth (82.1%) only endorsed these traumatic events during the administration of immigration-specific trauma assessment and not during the standard trauma assessment (Kilpatrick et al., 2000; Kilpatrick et al., 2003). That is, after assessing for all other traumatic events, the majority of individuals who endorsed further trauma exposure during immigration did so in response to a behaviorally-specific question (e.g., "Not counting events you have already told me about, while you were immigrating to the United States, did you ever experience [insert event]") or when assessing the degree to which the immigration process itself was viewed as traumatic.

These findings highlight the importance of utilizing an immigration-specific trauma assessment in addition to a standard, behaviorally-specific trauma assessment among Hispanic youth. Results suggest many traumatic events could go undetected or assessments may underestimate the full extent of trauma exposure in the absence of a specific assessment of immigration-related trauma. Lack of sensitivity in measuring trauma exposure can pose a threat to effective research on trauma, making it especially challenging to gain a full understanding of health disparities associated with the prevalence and effects of trauma-exposure within specific population groups (e.g., Hispanic youth). In addition, the potential shortcomings of commonly used trauma assessment measures in clinical settings also increase the risk that trauma-exposed youth may not get identified or receive appropriate mental health services. For example, if trauma exposure is not identified for a child referred for emotional or behavioral difficulties, a treatment intervention may be selected to target the emotional or behavioral symptoms rather than an evidence-based treatment for trauma exposure, which commonly include exposure-based techniques to also reduce distress associated with trauma-related memories.

While the current study points to the importance of immigration-specific trauma assessment, this finding applies mostly to the process of immigration itself. It is noteworthy that some of the reported immigration-related trauma should have been captured by the standard trauma interview, which assessed for specific events, including interpersonal violence (e.g., sexual/physical assault, witnessing violence) and non-assault trauma (e.g. natural disasters). The majority of in-transit events (7 of 11) that easily fall under other types of traumatic events (e.g., physical assault) were identified during the standard trauma assessment interview. It was the process of immigration itself that was captured solely by the immigration-specific trauma assessment and was not captured by the standard trauma assessment. Of the participants who reported in-transit trauma only during the immigration-specific assessment, 87.5% reported the process of immigration itself was traumatic. Criterion A1 of the DSM-IV's definition of trauma, which also coheres with DSM-5's current definition of trauma, was used to determine whether the process of immigration itself was traumatic (APA, 2000). Specifically, these youth reported thinking they or someone they knew may die or become

seriously injured while immigrating to the U.S. (APA, 2013). Given the current results, it would appear that immigrating to the U.S. may qualify as a traumatic event for many Hispanic youth and occurs frequently enough that clinical and research trauma assessments may benefit from including immigration-specific items for immigrant Hispanic youth. Further, modules that assess in-transit trauma may need to be added to standard trauma assessments and additional work is needed to determine how to best structure these assessments, especially in light of the current results in which youth reported immigration as traumatic but denied experiencing many of the events that would be thought to make it traumatic (e.g., physical assault victimization).

In-Transit Trauma and Mental Health Correlates

The importance of assessing for in-transit trauma exposure is made further apparent by the current study's findings that children and adolescents who endorsed immigration-related trauma were much more likely to endorse symptoms of PTSD and major depression, even after accounting for the effects of all other traumatic events. Most notably, the events that were not captured by standard trauma assessments uniquely predicted a substantial portion of PTSD and depression. That is, including an assessment of in-transit trauma substantially added to the relationship between trauma exposure and mental health. Compared to immigrant youth who did not report trauma during immigration, those who reported that the immigration process was traumatic and did not report any other in-transit trauma reported significantly more symptoms of depression and PTSD. While controlling for all of the events captured by the original NSA interview, experiencing the immigration process as traumatic not only significantly predicted depression and PTSD symptoms among Hispanic youth, but these results suggest it may be the strongest predictor when compared to other types of trauma exposure. Thus, assessment of immigration-related trauma may play a critical role in research and clinical assessment/intervention focused on addressing health disparities among Hispanic youth.

Limitations and Future Directions

The current findings are tempered by several limitations. Most notably, the current study utilized convenience and snowball sampling techniques. Such techniques may have inflated the homogeneity of the sample collected, which would limit findings regarding the prevalence of intransit trauma among Hispanic youth and may inflate the coefficients of the relations between trauma exposure and mental health outcomes. Similarly, the overwhelming majority of participants emigrated from Mexico or Central America (n = 123, 93.8%). While most immigrant Hispanics do come from these areas (68.9%; Brown & Patten, 2014), these results may not generalize to immigrant youth from other areas in Latin America. Additionally, the current sample was drawn exclusively from one community in the southern U.S. with recent new growth in the Hispanic population. While this sample may bolster generalizability to other areas with large and recent growth in the Hispanic immigrant population, the current results may not extend to youth immigrating to well-established Hispanic immigrant communities. Also, the assessment of in-transit trauma may be limited by the fact that the in-transit trauma module was developed specifically for this study and validity information (e.g., test-retest reliability) is not yet available. Despite these limitations, both the current study and one of the only other studies to quantitatively examine

in-transit trauma (Perreira & Ornelas, 2013) found strikingly similar prevalence rates of in-transit trauma utilizing a similar sample of immigrant Hispanic adolescents. Still, future studies should examine in-transit trauma in national samples of Hispanic youth with greater representation of the different Hispanic immigrant populations residing in the United States. Given that approximately one in three Hispanic youth reported in-transit trauma and that very few of these events were reported in standard trauma assessments, subsequent studies should examine in-transit trauma as potential explanatory factor in mental health differences between immigrant and U.S.-born Hispanic youth. Future studies should also examine the specific portions of the immigration experience that were traumatic. The current study did not assess for the multiple specific ways in which immigration may be traumatic without necessarily being exposed to violence. Given results of the current study suggesting that several youth experience immigration as traumatic without experiencing other identified threats to safety, additional work is needed to examine what aspects of immigration result in the process being experienced as traumatic. That is, it is unclear why youth feared death or injury to themselves or a loved one during immigration. As one example, some youth may strongly anticipate exposure to violence and as a result, experience immigration as traumatic without directly experiencing violence during the process. More specificity is also warranted to address under what conditions immigration may be traumatic. For example, future studies may benefit from examining whether immigration is experienced as traumatic exclusively in instances of land-border crossings or other situations as well. Given evidence that behavioral specificity improves reporting (e.g., Resnick et al., 1993), such studies will likely improve the assessment of in-transit trauma by enhancing its specificity. Additionally, the current study is limited by the use of exclusively correlational methodology and retrospective, cross-sectional design. Further, assessment of mental health symptoms is limited by the use of lifetime experiences of symptoms. While this may add to the potential variance in symptoms and allow for the detection of more transient symptoms, it may also limit the findings due to potential inaccuracies in recall. Simultaneously, lifetime assessments allow for the alternate explanation that participants may have already begun experiencing symptoms prior to immigrating and thus mental health difficulties may increase the likelihood of reporting immigration as traumatic. Future research should longitudinally examine the relation between in-transit trauma and mental health symptoms. Relatedly, the current study examined the relation between in-transit trauma, depression, and PTSD. While these represent the most common internalizing mental health symptoms following a traumatic event (e.g., Kilpatrick et al., 2000), results may not extend to externalizing symptoms, such as delinquency, which are also commonly associated with trauma exposure (e.g., López et al., 2016).

Conclusions

In sum, results from the current study suggest immigrant Hispanic youth often experience traumatic events during the process of immigration. For many immigrant Hispanic youth, the process of immigration itself qualifies as a traumatic event, even in the absence of any other identifiable traumatic event (e.g., physical assault). This type of traumatic event was only captured during immigration-specific trauma assessment. Taken together, results suggest that the inclusion of immigration-specific trauma assessment items may be

necessary to adequately capture trauma exposure among immigrant Hispanic youth. As a result, the current study implies that many studies assessing trauma prevalence may need to incorporate immigration-specific trauma assessment, including assessment of immigration itself as a traumatic event, in order to adequately capture trauma exposure among Hispanic immigrant youth and Hispanic youth overall. Mental health services with immigrant Hispanic youth may similarly benefit from utilizing immigration-specific assessments of trauma exposure.

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Table 1.

Participant Demographic Information

	N	***SD***
Gender		
Male	71	54.2%
Female	60	45.8%
Language of Interview		
English	69	52.7%
Spanish	62	47.3%
Country/Region of origin		
Central America	4	3.1%
Mexico	119	90.8%
South America	8	6.1%
	Mean	***SD***
Age	12.62	2.48
Time in the US		
Full sample	4.53	3.25
Immigration trauma sample	2.92	2.25
Age at immigration		
Full sample	8.10	3.60
Immigration trauma sample	10.35	3.07

Table 2.

Trauma Assessment Description

NSA traumatic event categories	**Assessment items***
Sexual abuse	Forced vaginal or anal penetration by an object, finger, or penis Oral sex Touching of the respondent's breasts or genitalia The respondent's touching of another person's genitalia
Physical abuse	Spanking that left bruises, welts or required medical care Having been cut, bruised, burned or tied up as punitive consequence.
Physical assault	Attack or threat with a gun, knife, or some other weapon Attack with perceived intent to kill or seriously injure Beating with injury
Witnessing domestic violence	Having seen or heard parents or other adults in their home push slap, shove, punch, beat, or choke the other Having seen or heard parents or other adults hit the other with an object Heaving seen or heard parents or other adults threaten the other with a gun knife, or other weapon
Witnessing community violence	Witnessing someone shoot someone with a gun Witnessing someone cut or stab someone else with a knife Witnessing someone threaten someone else with a gun, knife, or other weapon Witnessing someone mug or rub someone else Rape or sexually assault someone
Non-assaultive trauma	Experiencing a natural disaster Being the victim of terrorism Being in an area where there was a war Being in a serious motor vehicle accident Having a life threatening illness
In-transit trauma assessment	**Assessment items**
In-transit trauma captured by standard NSA interview	Indicating that one of the events reported during the NSA trauma assessment occurred during immigration
Violence exposure captured during immigration trauma module	Indicating an experience of physical assault, sexual assault or having witnessed physical or sexual assault when the initial prompt queries specifically about immigration
Immigration process as traumatic event	Indicating that immigration itself qualifies as a traumatic event

Note:

* For display simplicity, multiple assessment items were collapsed into a single category (e.g., experiencing completed rape was queried separately from other sexual assault).

Table 3.

Trauma Exposure and Mental Health Descriptive Information

	n	%
Standard trauma assessment categories		
Child physical abuse	43	32.8%
Physical assault	25	19.1%
Sexual assault	9	6.9%
Witnessing community violence	68	51.9%
Witnessing domestic violence	19	14.5%
Non-assaultive trauma	63	48.1%
In-transit trauma		
Any	39	29.8%
Reported during standard assessment[ǂ]	7	5.3%
In-transit events missed by standard assessment[ǂǂ]	32	24.4%
Immigration process as trauma[ǂǂǂ]	28	21.4%
Mental health outcomes	***Mean***	***SD***
PTSD[*] symptom sum		
Overall sample	2.55	3.87
Youth indicating immigration process as trauma	4.82	5.28
Depression symptom sum		
Overall sample	1.58	2.12
Youth indicating immigration process as trauma	2.89	2.71

Note:

[*] Posttraumatic stress disorder;

[ǂ] During the trauma assessment prior to immigration-specific trauma module, youth were asked if any event they endorsed occurred during immigration;

[ǂǂ] This represents the traumatic events that were only reported during the immigration-specific module, but belonged to a category that was assessed during the standard assessment;

[ǂǂǂ] This represents the number of youth who reported that the immigration process was traumatic, but had not endorsed a traumatic event during immigration that could be otherwise classified (e.g., witnessing violence)

Table 4.

Youth who Reported In-Transit Trauma and Other Trauma Types

	Any In-Transit Trauma‡		Immigration Process Trauma†	
	N (%)*	RR (95% CI)	N (%)*	RR (95% CI)
Witness violence	20 (29.4%)	1.33 (0.61–2.91)	14 (21.9%)	0.96 (0.41–2.22)
Witness DV	7 (36.8%)	1.75 (0.63–4.88)	5 (26.3%)	1.56 (0.50–4.87)
Child physical abuse	15 (34.9%)	1.82 (0.82–4.06)	11 (25.6%)	1.62 (0.67–3.88)
Physical assault	10 (40.0%)	2.16 (0.86–5.51)	7 (28.0%)	1.84 (0.67–5.10)
Child sexual abuse	4 (44.4%)	2.35 (0.59–9.30)	2 (22.2%)	1.18 (0.23–6.19)
Non-assaultive trauma	20 (31.7%)	1.64 (0.75–3.59)	15 (23.8%)	1.42 (0.61–3.29)

Note:

‡There were 11 instances of in-transit trauma that could be coded as other trauma types. All of these are coded under both “any in-transit trauma” and the appropriate other event above.

†Immigration process trauma refers to instances in which youth reported fearing for they or a loved one would be injured or killed during immigration, but denied traumatic events that could be categorized under any other trauma type. Each of the events referenced as immigration process trauma was missed by the standard trauma assessment.

*The percent reported reflects the percent of youth who reported a given traumatic event from the standard assessment who also reported in-transit trauma (e.g., 29.4% of youth who reported witnessing violence also reported experiencing some type of in-transit trauma).

Table 5.

Summary of Negative Binomial Regression Analyses for PTSD Symptom Counts

	Model 1		Model 2	
	***b* (SE)**	***p*-value**	***b* (SE)**	***p*-value**
Age	0.05 (0.05)	.319	0.01 (0.06)	.862
Gender	0.08 (0.27)	.762	−0.06 (0.27)	.819
CPA	0.51 (0.26)	.048	0.51 (0.29)	.074
PA	0.57 (0.33)	.085	0.45 (0.36)	.212
SA	0.30 (0.37)	.412	0.35 (0.36)	.330
WCV	0.26 (0.28)	.355	0.26 (0.29)	.360
WDV	0.21 (0.34)	.540	0.12 (0.35)	.732
NAT	0.51 (0.28)	.069	0.42 (0.27)	.122
Imm. trauma			0.76 (0.30)	.012
Model χ^2 *(df)*	37.42 (7)		43.85 (8)	
p-value	<.001		<.001	

CPA-child physical abuse; PA-physical assault; SA-sexual assault; WCV-witnessing community violence; WDV-witnessing domestic violence; NAT-non-assaultive trauma; Imm. Proc.-immigration process trauma, which was coded as present if youth reported fearing death or serious injury to themselves or a loved one during immigration, but did not report in-transit trauma that could be categorized as one of the potentially traumatic events covered during standard trauma assessment.

Table 6.

Summary of Negative Binomial Regression Analyses for Depression Symptom Sums

	Model 1		Model 2	
	b (SE)	***p*-value**	***b (SE)***	***p*-value**
Age	0.05 (0.05)	.320	0.03 (0.05)	.554
Gender	−0.34 (0.26)	.198	−0.47 (0.26)	.073
CPA	0.33 (0.24)	.175	0.35 (0.25)	.155
PA	0.19 (0.49)	.235	0.15 (0.31)	.632
SA	0.43 (0.33)	.191	0.54 (0.36)	.133
WCV	0.25 (0.30)	.403	0.18 (0.29)	.535
WDV	0.39 (0.30)	.197	0.36 (0.29)	.222
NAT	0.36 (0.26)	.162	0.29 (0.25)	.250
Imm. Proc.			0.90 (0.25)	<.001
Model χ^2 *(df)*	22.91 (7)		32.57 (8)	
p-value	.003		<.001	

CPA-child physical abuse; PA-physical assault; SA-sexual assault; WCV-witnessing community violence; WDV-witnessing domestic violence; NAT-non-assaultive trauma; Imm. Proc.-immigration process trauma, which was coded as present if youth reported fearing death or serious injury to themselves or a loved one during immigration, but did not report in-transit trauma that could be categorized as one of the potentially traumatic events covered during standard trauma assessment.