



Cumulative Stress and Trauma from the Migration Process as Barriers to HIV Testing: A Qualitative Study of Latino Immigrants

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Published online: 30 June 2018

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Abstract

Immigrants are at increased risk for late HIV testing; however, there is limited understanding of how migration to the United States shapes HIV testing behaviors. This study examined the relationship between the migration process and HIV testing among Latino immigrants. Semi-structured, in-depth interviews were conducted in March and April 2017 with 34 Latino immigrants in New York City. Grounded theory guided analysis of the qualitative data. Results indicated that Latino immigrants experienced cumulative stress and trauma throughout the migration process that contributed to significant emotional and psychological consequences. Stress and trauma accumulated from the migration process posed barriers to HIV testing as Latino immigrants sought to avoid activities perceived as stressful, including learning one's HIV status. Targeted interventions that ameliorate the stressful effects of migration may facilitate preventive health behaviors among Latino immigrants.

Keywords HIV testing · Latinos · Migration

Introduction

It is widely acknowledged that HIV testing is critical for linking HIV positive individuals to care and reducing the spread of HIV infection [1]. While national efforts have sought to make HIV testing easier and more accessible in the United States [2, 3], an estimated 15% of people with HIV still remain unaware of their infection [4]. Persons who are undiagnosed or are diagnosed late in the course of HIV infection are subject to increased risk for mortality and poor health outcomes [5]. Additionally, estimates suggest that nearly one-third (30.2%) of all HIV transmissions are accounted for by undiagnosed individuals with HIV [6].

Latinos, who are at greater risk for late HIV testing than any other racial/ethnic group in the United States [7], are disproportionately impacted by HIV. Latinos represent approximately 21% of people living with HIV while accounting for about 17% of the nation's population [8]. Moreover, Latinos have a HIV diagnosis rate more than three times that of whites [8]. Latinos are also less likely to be linked

and retained in care and achieve viral suppression relative to their white counterparts [9].

Low rates of HIV testing and late HIV testing behaviors are, in part, attributable to disparities in HIV related health outcomes. The Centers for Disease Control and Prevention (CDC) recommends routine HIV testing among adolescents and adults ages 13–64 years, and individuals living in high HIV prevalence settings are recommended to be screened at least annually [10, 11]. Only 15% of Latino males and 21% of Latino females tested for HIV in the past year [12], and less than half of all Latinos (46%) have ever tested for HIV in their lifetime [2]. These data point to evident gaps in HIV testing among Latinos in the United States.

Among Latinos, immigrants are more likely to be undiagnosed or diagnosed late in their disease [7, 8]. While HIV testing data among immigrants is limited because population level data are often not aggregated by nativity [13], extant research suggests that immigrants encounter significant barriers to HIV testing. For example, widely acknowledged barriers to HIV testing among Latinos, including language, poverty, education, and access to healthcare are often exacerbated for immigrant groups [14, 15]. Resultantly, immigrants bear a disproportionate burden of HIV among the Latino population; Latino immigrants account for an estimated 42% of all HIV diagnoses but account for approximately a third (34%) of the

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Latino population [16, 17]. Taken together, increasing HIV testing among Latino immigrants can improve linkage to treatment and care and reduce future HIV transmissions. While being born outside of the United States has been identified as a risk factor for late HIV testing [5], limited efforts to increase HIV testing have specifically targeted this group [13].

To inform the development of interventions that increase HIV testing behaviors among Latino immigrants, greater understanding of how migration shapes opportunities for HIV testing among this population is sorely needed. While migration's role in HIV transmission has been closely examined [18, 19], less is understood about how this process influences HIV testing. Extant research has contributed to a breadth of knowledge on the numerous barriers to HIV testing among Latinos that include individual, social, and contextual level factors [20, 21]. The linkages between these barriers and the migratory process, however, is often overlooked.

Contemporary mobility, as Zimmerman et al. [22] theorize, is a multistage process in which distinct contexts are involved. Specifically, the migration process has been conceptualized as “stages” through which migrants may pass: (1) pre-departure, (2) travel, (3) destination, (4) interception, (5) return, and (6) settlement [22]. Important to note is that these stages do not necessarily occur linearly, and migrants may encounter certain stages more than once. Migratory stages may be relevant in our understanding of HIV testing as the distinct contexts associated with each stage may present determinants of health related behaviors. The pre-departure stage, for example, may present challenging financial conditions or limited availability of health services that are associated with low rates of HIV testing. Additionally, the destination stage may be characterized by factors that may limit access to health services, such as anti-immigrant sentiment. Taken together, each migration stage may pose unique social determinants of health that warrant greater understanding and targeted attention. Understanding HIV testing along the continuum of migration may inform the development of interventions given the mobility of the Latino immigrant population [23].

This study sought to build upon prior research by closely examining the migration process and its influence on HIV testing to identify opportunities for increasing HIV testing among Latino immigrants. Specifically, the study sought to better understand risks associated with each migration stage by identifying unique characteristics of each stage that may be implicated in HIV risk or prevention. By better understanding the migration-related barriers to testing among Latino immigrants and increasing HIV testing among this population, we can inform targeted prevention efforts to significantly reduce incidence of HIV/AIDS.

Methods

Participants and Data Collection

During March and April 2017, we conducted interviews using a convenience sample of Latino immigrants from Corona, Queens—the New York City neighborhood with the greatest number of Latino immigrants [24] and the greatest number of new HIV diagnoses among Latinos in New York City from 2010 to 2014 [25]. Participants were recruited via community outreach; engagement of community linkages for recruitment was utilized to enhance legitimacy of the project and to overcome fear and mistrust among immigrants that is often cited as a barrier in the literature to recruiting migrant groups for research [26]. Given the potential biases attributed to sampling from community agencies, we diversified the organizations and agencies from which we recruited participants for the qualitative interviews. Specifically, participants were recruited from (1) a health fair; (2) a public library; (3) a health clinic; and (4) a church.

Project staff approached adults at the recruitment locations and screened for eligibility: (1) being an adult aged 18 and older; (2) being an immigrant (not born in the U.S.); and (3) being of Latino ethnicity. A stratified sampling technique was used to select for diversity on characteristics of theoretical importance for the in-depth interviews (gender, age, length of time in the U.S., language preference, and country of origin). Latino immigrants who met inclusion criteria were invited to participate in the study. Participants were informed that we were conducting a project on health behaviors among immigrants in the U.S. and that we sought to ask questions about their behaviors. All potential participants formally consented prior to participation. In-depth interviews were conducted in Spanish or English based on the participant's preference. All interviewers were fluent in Spanish and trained to interview individuals with limited literacy. Interviews lasted approximately one hour and were conducted in a private location within the recruitment sites. Latino immigrants who participated received a \$20 incentive.

The semi-structured interviews asked about participants' perspectives on HIV testing and about their migration experience. Notably, the terms “migration” and “migration process” have generated much debate and competing viewpoints across disciplines and ideologies. In efforts to speak across disciplines, the term “migration process,” as used in this study, did not assume particular motives for moving or require certain results of that movement [27]. Rather, the study's dynamic definition of the migration process sought to encompass the complexity and diversity of contemporary migration. Specifically,

we presented different “stages” of migration as conceptualized by Zimmerman et al. [22] that participants could describe: (1) pre-departure, (2) travel, (3) destination, (4) interception, (5) return, and (6) settlement. The semi-structured interview questions allowed participants to define their own experience across the migration stages, which resulted in rich accounts and experiences linked to the migration process.

Data Analysis

We used a data-reduction process in which emergent themes were identified and coded to yield a set of core themes. We systematically coded data using a well-defined thematic codebook. The codebook consisted of a theoretically-informed manual of codes and sub-codes, defined by specific definitional criteria that allowed for coding [28]. Guided by grounded theory [29], initial coding involved categorizing segments of data by codes that summarized and accounted for each piece or portion of the data. Data were coded and analyzed, and a “tree” of codes was created that was used to identify both individual and overlapping thematic units in the data.

Through focused coding [29], we identified thematic units, which are defined as frequently occurring sets of explanatory statements [30]. In addition, the data were explored for any negative incidents and divergent themes to add rigor and validity to the results of the qualitative analysis. These thematic units were also linked to the migration stages described above. The range of variation along individual codes across the sample was examined in order to obtain information about aggregate tendencies across the sample. This kind of “vertical” analysis decontextualized the data segments by removing them from the larger transcript, permitting examination of code-specific responses across the sample. Second, individual cases in the data were examined by analyzing how instances of particular factors were related to the larger context of meaning and experience of a person.

Results

We conducted interviews with 34 Latino immigrants. Approximately two-thirds (65%) of participants were female and 35% were male. Participants’ countries of origin included Mexico ($n = 17$); the Dominican Republic ($n = 5$); Ecuador ($n = 8$); and other ($n = 4$). Half of participants spoke only Spanish and about one-third (35%) spoke more Spanish than English. The average length of time that participants resided in the mainland United States was 15.8 years with a range of 7 months to 33 years. Participants’ ages ranged from 18 to 84 years with a mean age of 39.2 years. Additional demographic information of the Latino immigrants

Table 1 Selected characteristics of Latino immigrants participating in in-depth interviews ($N = 34$)

Characteristic	No. (%)
Gender	
Male	12 (35.3)
Female	22 (64.7)
Age, years	$M = 39.1$ years
18–25	6 (17.6)
26–35	12 (35.3)
36–45	5 (14.7)
46–55	6 (17.6)
56+	5 (14.7)
Country of origin	
Mexico	17 (50.0)
Dominican Republic	5 (14.7)
Ecuador	8 (23.5)
Other ^a	4 (11.8)
Length of Time in U.S., years	$M = 15.8$ years
< 3	2 (5.9)
3 to < 10	4 (11.8)
10 to < 15	11 (32.4)
15 to < 20	7 (20.6)
20 to < 25	4 (11.8)
25 to < 30	3 (8.8)
30+	3 (8.8)
Marital status	
Single; not living with partner	11 (32.4)
Not married; living with partner	8 (23.5)
Married; living with partner	15 (44.1)
Highest level of education	
Elementary school or less	10 (29.4)
Middle school	7 (20.6)
High school	12 (35.3)
College	5 (14.7)
Language preference	
Only Spanish	17 (50.5)
More Spanish than English	12 (35.3)
Both Spanish and English	3 (8.8)
More English than Spanish	2 (5.9)

^aOther included: Colombia, Peru, Venezuela, and El Salvador

who participated in the in-depth interviews is presented in Table 1.

Stress and Trauma During the Migration Process

Latino immigrants provided detailed accounts of the migratory process itself. While accounts varied, they shared a theme of stress and trauma that immigrants experienced from the journey between home countries and the United States. Specifically, along the migratory process, immigrants

noted traumatic experiences that affected current attitudes about health seeking. Quotes marked with an asterisk were translated from Spanish to English.

Pre-departure

The pre-departure stage of migration encompasses the period prior to leaving one's location of origin, when the individual is preparing to travel to another country [31]. Participants' experiences prior to leaving for the United States depicted harsh living conditions and a sense of urgency to leave. Violence, death, and extreme poverty characterized the pre-departure stage of migration for many of the Latino immigrants: "Well I came here because my parents died over there" (Female, Age 36, Mexico).^{*} Another participant explained, "There are a lot of killings. A lot of... a lot of people that do bad things" (Female, Age 26, Mexico).^{*} Participants' cities of origin are often characterized by high levels of violence and crime. These factors are linked to instability and economic insecurity as described by the participants: "Over there in our country, there is a lot, a lot of poverty. I didn't have a future, I didn't have an option because I didn't have any money in my country" (Male, Age 45, Ecuador).^{*} Moreover, the experience of not being able to prepare for migration but simply "having to leave," exacerbated the traumatic experience of leaving one's home country: "We didn't even know what was going on. We didn't pack anything... It was traumatic because they don't prepare you for something like that" (Female, Age 24, Mexico).

Travel

The travel stage comprises the transit between when migrants depart their location of residence and arrive at their intended destination location [32]. The journey to Queens, New York from participants' countries of origin was difficult for many to recount due to the life-threatening conditions that they experienced: "... It was new for me. And we were running... and I didn't even know why. For no reason. Yea, it was scary. It's hard for me... (Female, Age 24, Mexico). Another participant explained: "It was hard. Because you had to take care of yourself. Nobody cares about you. You have to do what they say" (Male, Age 24, Ecuador).

The perilous experience of migrating across the U.S.-Mexico border is well known and widely publicized in the media. Latino immigrants described physical, emotional, and psychological trauma during their travel to the United States: "We walked eight days in the desert, over rocks... to cross it took two days to get to this side" (Female, Age 32, Mexico).^{*} Another participant described her travel experience: "It was hard. Sometimes we did not drink water, we didn't eat. We walked a lot and my toenails fell off of my feet" (Female, Age 33, Ecuador).^{*}

The notion that migration to the U.S. is an experience that one "would never recommend to anyone" highlighted the long-lasting impact of the journey. Additionally, many Latino immigrants did not want to discuss their journey, citing suppression of memory and the difficulty in attempting to tell their migration story.

Arrival

The arrival stage of migration involves the period when individuals reach their intended location and initially inhabit their new environment [22]. Once arriving in the United States, many participants explained that the stark difference in environments was a distressing experience: "It felt weird, because I didn't know the streets or anything. I felt weird" (Female, Age 24, Mexico).^{*} "It was extremely difficult. Because we couldn't even count bills because it's very difficult here" (Female, Age 26, Mexico).^{*} Unfamiliarity with the language, the customs, and even the weather presented challenges to adjustment and integration into the community. For example, one participant noted, "It was night when I arrived. It was snowing and it was very cold" (Female, Age 26, Mexico). She explained the shock of being in a new environment and feeling uncertain about her ability to be able to "make it" in the United States.

Additionally, Latino immigrants described feeling unwelcome and unwanted, which escalated feelings of stress from the arduous journey to the United States. Recognition of the perception that "people don't like immigrants" at the onset of arrival presented challenges to obtaining employment and starting a life in a new place. These sentiments also contributed to feeling isolated and unable to seek support or services: "I have never been very informed. Since I arrived here, I have never received help from anyone" (Female, Age 32, Mexico).^{*}

Settlement

The settlement stage is when migrants have left the destination stage and are fully established in their new country of origin [33]. Notably, many participants explained that they might never enter this stage. After several years in the United States, one participant remarked: "No, I haven't integrated" (Female, Age 24, Mexico).^{*} Participants explained that the difficulties continued as they attempted to settle in the United States: "In the beginning it was hard. I couldn't say anything to anyone because I didn't know how to speak English" (Male, Age 24, Ecuador). In addition to language barriers, the constant fear of deportation can be psychologically taxing, and many immigrants explained that this fear was always on their minds: "We are afraid that they will deport us to Mexico. Like now, when I leave the house, you

never know if they will come and take you” (Female, Age 35, Mexico).*

Moreover, witnessing violence and discrimination against Latino immigrants in the United States was another traumatic experience that added to their extant stress. Many participants noted that racism and violence against immigrants is real and part of their daily existence. “I have seen violence against immigrants, so, well, yes...it affects me because I am not legal here. So, I hope one day they will recognize immigrants” (Female, Age 36, Mexico).* With increased attention on immigration in politics and the media, Latino immigrants noted that the fear has escalated, and concern about “what will happen to [immigrants]” is renewed daily.

Interception

Not all migrants encounter the interception stage as it occurs when individuals are temporarily detained or provisionally removed from their destination location [22]. For some participants, interception and deportation was not simply a fear but an actual lived experience: “On the Mexico border, immigration caught me and federal transportation took me to Guatemala” (Male, Age 35; Peru).* Another participant noted: “[My husband] got in a car accident, so they put him in jail. And immigration came to the jail... he has court in November. What happened was that he was drinking and driving and he fell asleep at the stoplight” (Female, Age 24, Mexico; QI13)*.

Latino immigrants described harsh occurrences of arrest and feeling little to no control over their lives: “It was horrible because, immigration got us and they took our shoes. They threw us out and we had to walk and there were a lot of snakes and *matorrales*—trees that are small but have thorns that cut you” (Female, Age 26, Mexico).* Lack of autonomy and fear of the law threatened participants’ safety and well-being. The potential for imprisonment and severe punishment tormented the lives of many immigrants, affecting their stress levels and functioning. “They scare us. As an immigrant, sometimes we are not informed, and we get scared because we don’t know what’s going to happen” (Male, Age 37, Mexico). * Important to note is that the fear of interception and deportation was reported only among participants who identified as undocumented or unauthorized to be in the United States. Those participants who arrived in the United States via legal mechanisms did not share these concerns. However, they did explain that obtaining status provides immigrants with a sense of “peace” and “happiness” that those without it are unable to attain.

Return

Individuals encounter the return stage when they go back to their place of origin. This return may be for a temporary or

indefinite visit, or for permanent resettlement [22]. While the hope of many immigrants in the United States is to 1-day return to their home countries, many participants explained that this hope is an unattainable dream. “I would want to go [back], but I’m not from here. So... that would be hard for me to come back. Unless I get papers” (Female, Age 18, Mexico). While many immigrants in New York City still have family in their home countries, they are unable to return. Family separation can be distressing and place further economic stress on immigrants in the United States. “I have thought about returning... one day... in one, two years, who knows—to return to see my parents” (Male, Age 37, Mexico)*. Immigrants explained that while the desire to return home is great, the fear of never being able to return to the United States is greater: “It’s stuck in me that I could get left behind. You know, if you go and sometimes you can’t go back—or so people say...so that’s been my fear” (Female, Age 20; El Salvador). Given that immigrants’ ability to travel outside of the United States is often tied to their migration status, participants noted that the anticipation of returning to their home country is permeated with fear and anxiety.

The issue of status was reiterated as linked to the trauma of returning to one’s home country. The trauma of return was applicable to those without documentation in the United States. Participants who identified as “having papers” described “going back and forth” and returning to their home country for vacation; while those “without papers” expressed sentiments of longing, separation, and fear.

HIV as Potential Stress and Trauma

When asked about HIV/AIDS, nearly all participants indicated that they knew of or had heard about the disease. One participant exclaimed, “The whole world knows that there is AIDS” (Male, Age 59, Dominican Republic).* While knowledge about HIV transmission and risk varied, most participants were able to explain that HIV can be “transmitted sexually and also through blood” (Female, Age 32, Mexico).* Injection drug use and contaminated needles were also mentioned as mechanisms of transmission. While participants were relatively knowledgeable about HIV and noted that “there is risk everywhere” (Male, Age 36, Mexico), the fear of contracting HIV was considered overwhelming. Participants frequently mentioned the consequence of death and the lack of a cure for HIV: “...Because they don’t have a cure for AIDS. I heard that you will die (Male, Age 56; Colombia)*.” “They say that it is death. Your life is over. There’s a lot of fear” (Female, Age 24, Mexico)*.

This fear of HIV often extended to the fear of HIV testing. One participant explained that people in the community do not want to get tested because “they are scared that they

will detect it [HIV].” (Female, Age 26, Mexico). Another participant elaborated:

They [Immigrants] are scared of getting the test because of fear of knowing that they’re positive. It’s better not to know. If they know, it can create a strong impact. Sometimes, I think we prefer to ignore these situations before looking at reality in hopes that they won’t affect us (Male, Age 45, Ecuador)*.

The notion of HIV as potential stress and trauma facilitated avoidance of testing and preventive health behaviors. Immigrants explained the competing priorities in their lives and noted that their own health was among their last concerns. “They [Immigrants] just don’t care” (Female, Age 25, Dominican Republic) said one participant when asked about HIV in her community. Taken together, there was an overwhelming preference to avoid the potential trauma of HIV and to place attention on issues of seemingly greater importance.

Discussion

The overwhelming consensus among participants was that migration presented undesirable or unpleasant experiences that contributed to feelings of stress and trauma. While exposure to stress and trauma is associated with a wide range of psychological outcomes, avoidance is a common behavior that can represent an attempt to cope with certain emotional states [34]. Naturally, the experience of learning of one’s HIV infection can present a stressful or traumatic experience. The ramifications of HIV infection and the stress of informing others proved overwhelming and daunting among participants. Hence, the desire to avoid this stressful experience illustrates a potentially unhealthy coping mechanism for reducing the stress and trauma already present in their lives.

Important to note are the varying degrees and types of trauma that can occur. Traumatic events often include life-threatening events or accidents, unwanted sexual experiences, or exposure to violent crime [35]. However, the extant research highlight that there is no a priori method to define or operationalize the degree of exposure to a traumatic event [36]. Critical to analyzing the present data was a focus on the subjective responses and participants’ experiences when they described their migration processes. Hence, the concepts of stress and trauma should be understood with the awareness that the degree of exposure to uncomfortable, harmful or threatening experiences varied among the participants.

While individual level barriers to HIV testing among Latino immigrants such as negative expectancies about testing and fear of test results have been commonly cited

in the research literature [37, 38], study participants highlighted that these individual level factors may be inextricably linked to their migration experience. Specifically, Latino immigrants’ fear of HIV testing may be distinct from that of other groups given their history of stress and trauma. The overarching desire to avoid a potentially stressful event may stem from prior experiences of events that elicited stress.

Stress and trauma may not only affect individuals’ attitudes about HIV testing, but also shape social factors that are associated with testing. Participants supported the collectivistic culture and family orientation of people of Latino background as they described the difficulty in leaving family members or losing forms of social support as results of migrating to the United States. The disruption of social ties may present impediments to HIV testing. Notably, living with relatives or having a significant other who tested for HIV has been associated with prior HIV testing among Latinos [39].

Additionally, stress and trauma may affect contextual level factors associated with HIV testing. Contextual factors are significant correlates of HIV testing, and the role of geography in HIV testing has been widely documented [40, 41]. The availability of HIV testing resources and the community level awareness of HIV can impact rates of HIV testing for specific populations, such as Latino immigrants, that are likely to settle in communities where they have social ties [42]. Areas where low socio-economic status and racial/ethnic minority groups intersect have exhibited clustering of HIV, referred to as “micro-epidemics” [43]. These micro-epidemics highlight factors often associated with one’s context, such as socio-economic status and length of time in the U.S., that have been documented as correlates of HIV testing [37]. Stress and trauma may exacerbate the economic distress or sociopolitical marginalization in these communities to increase risk for HIV and present barriers to prevention services. Moreover, as national policies and legal restrictions pose explicit barriers to health services for undocumented groups, health services may be less available for immigrant populations in these communities. Taken together, stress and trauma from immigration may intersect with contextual level factors to prevent access or utilization of HIV prevention services available in the community.

As current approaches to increase HIV testing among Latinos focus on improving access [13], study results indicate that the unique process of migration may inhibit health seeking behavior and warrants attention in improving access to health services. To address the effects of migration on HIV testing, intervention efforts may consider addressing the impact of stress and trauma to remove a major testing barrier. Figure 1 presents a conceptual framework that draws upon the study results to demonstrate that stress and trauma affects immigrants’ context, social relationships, and individual attitudes.

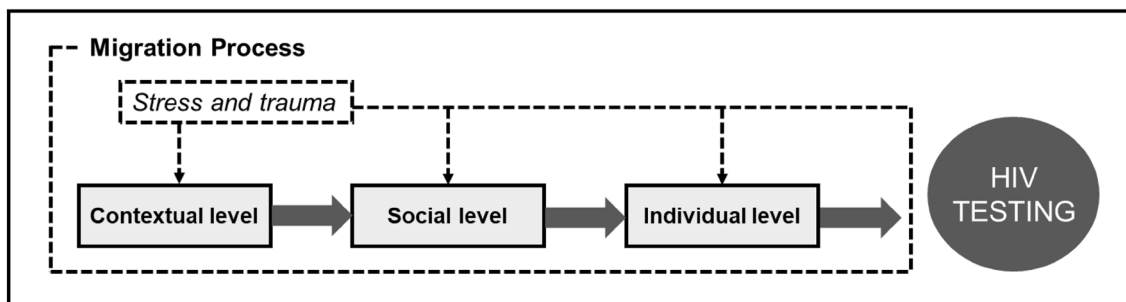


Fig. 1 Accumulation of stress and trauma as barriers to HIV testing for Latino immigrants: conceptual framework

Moreover, interventions must not only consider the impact of stress and trauma on each level, but the cumulative effect that it has on shaping opportunities for HIV testing. In other words, a multilevel approach that addresses cumulative stress and trauma and acknowledges the linkages between the contextual, social, and individual level to determine HIV testing may be critical for increasing HIV testing among Latino immigrants.

Additionally, attention to migratory stages and the associated stress and trauma at each stage may offer targeted opportunities for HIV prevention. Prevention efforts that target each migratory stage may prevent the accumulation of stress and trauma described in this study. Notably, a study on migrants traveling across the United States-Mexico border found that HIV prevention messages that target migrant groups at each migration stage may help decrease HIV risk among this population [44]. Our findings align with extant research that suggests that different points of the migration process may present distinct opportunities for prevention and intervention [23]. While the present study did not explicitly assess HIV risk behaviors or HIV prevention strategies at each stage of the migration process, it examined characteristics of each migratory stage that may be associated with HIV risk. Specifically, study findings indicate that tailored approaches to prevent or ameliorate stressors at each stage of the migration process may reduce potential barriers to HIV testing. For example, providing supportive services for migrants along common migration routes may reduce stressors experienced during the travel stage of migration. Interventions targeted at each migration stage may reduce the accumulation of stress that pose barriers to HIV testing. Notably, this approach requires bi-national efforts to identify feasible and acceptable strategies to reduce stressors or potentially traumatic experiences during the migration process. Taken together, our findings support the increasing evidence that demonstrates the importance of considering the migration process in HIV prevention efforts [23].

Limitations

It is important to note that the study participants were residents of Queens in New York City. While aspects of Queens parallel those of other metropolitan areas, the density and demographics of Queens are unique. Hence, caution should be exercised before generalizing the study results to other geographic regions or Latino immigrant communities.

Additionally, as Latino immigrants, particularly undocumented immigrants, have tended to be excluded in research due to mistrust or fear of deportation, our study is subject to response bias given the participant population. While many participants discussed their immigration status in the interviews, interviewers did not explicitly ask about participants' documentation status. As undocumented immigrants may experience additional barriers to HIV testing and prevention services due to their immigration status [45, 46], and may be more likely to experience stress and trauma, this limitation is important to note. However, confidentiality of responses was reinforced to participants, and any insight into this often-neglected population will be useful to understanding their HIV prevention needs.

Recall bias is also a limitation to this study. Migration is a time-variant process, and participants varied widely in age and in their length of time residing in the mainland United States. Hence, not all participants may have accurately remembered their migration experience.

Finally, it is important to note that there are protective factors and coping strategies that can buffer against the impact of stress and trauma during the migration process that were not explicitly identified in this study. For example, social support and coping have been identified as protective factors against acculturative stress among Latino immigrants in prior research [47]. These protective factors may vary across specific subgroups of Latino immigrants, and may play an important role in intentions and

opportunities to test for HIV. Since there may be critical overlap between acculturative stress and stress resulting from the migration process [48], the lack of attention to these buffering factors may limit study findings about how the migration process is implicated in HIV testing through stress and trauma. Further research is required to examine how buffering factors shape the relationship between accumulated stress and trauma from the migration process and HIV testing behaviors among Latino immigrants.

New Contribution to the Literature

Results have important implications for developing interventions to increase HIV testing among Latino immigrants in the United States. First, Latino immigrants experience stress and trauma throughout the migration process that often remains unaddressed. The stress and trauma can accumulate and lead to psychological and physical consequences that can shape determinants of HIV testing. Second, Latino immigrants reported that HIV represents an additional source of stress and trauma that elicited feelings of worry. While immigrants were aware of HIV and the availability of HIV testing, many preferred to avoid knowing their status due to fear of the consequences of being HIV positive. The avoidance of HIV testing demonstrated the toll of the migration process and the difficulty among Latino immigrants in dealing with additional stressful or traumatic events.

Taken together, our results could help public health efforts to meet the HIV and health needs of this marginalized and often neglected population. By providing additional resources and developing targeted programs that ameliorate the traumatic effects of the migration process, Latino immigrants may be more apt to get tested rather than avoid HIV testing or other health services.

Acknowledgements The study was supported by the National Institute of Mental Health of the National Institutes of Health under Award Number R36MH108395. The content is solely the responsibility of the author and does not necessarily represent the official views of the National Institutes of Health. Additional support was provided by the Center for Latino Adolescent and Family Health at New York University Silver School of Social Work.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional Review Board at New York University and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

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