

# Immigrant status and psychotic experiences in the United States: revisiting an immigrant paradox

## Correspondence

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According to a recent meta-analysis, immigrants had significantly greater odds of having psychotic disorder than their native-born counterparts (pooled incidence rate ratio: 3.09; 95% CI: 2.74–3.49) (Castillejos, Martín-Pérez, & Moreno-Küstner, 2018). Selten and colleagues' (Selten, van der Ven, & Termorshuizen, 2020) own meta-analysis bolstered this association, by showing that migrants were at increased risk of developing affective and non-affective psychotic disorders, albeit with heterogeneous results by country. At the same time, a large multi-country study found that incidence rates of psychotic disorders vary significantly depending on where immigrants come from and where they settle (Termorshuizen et al., 2020). Most of the studies included in Selten and colleagues' meta-analysis were conducted in Europe, and the authors rightly pointed out that there has been an absence of studies showing increased risk among migrants to the United States. In fact, immigrants in the United States often exhibit a health advantage (immigrant paradox, also referred to as the Hispanic/Latino paradox; Ruiz, Hamann, Mehl, & O'Connor, 2016). This is possibly due to the selection of healthy or resilient people who have the means and resources to complete what can be an arduous and complicated journey. It is also possible that unhealthy individuals return back to their countries of origin, what is known as 'salmon bias' (Abraido-Lanza Dohrenwend, Ng-Mak, & Turner, 1999). And yet another possibility is that cultural aspects of one's heritage (e.g. diet) may protect against health problems (Abraido-Lanza, Chao, & Flórez, 2005). Indeed, having a strong ethnic identity and sense of ethnic community can buffer the deleterious effects of social stressors that lead to health problems (Mossakowski, 2003; Mossakowski, Wongkaren, Hill, & Johnson, 2019; Wei, Wang, Heppner, & Du, 2012). All in all, much depends on the 'push and pull factors' of migration, namely where immigrants come from, the circumstances surrounding their departure and their journey, and where they ultimately settle in the host country (Schwartz, Unger, Zamboanga, & Szapocznik, 2010; Schwartz et al., 2014).

Still, there is some question as to whether or not the immigrant health advantage observed in the United States extends to psychosis. At most we have evidence that the association between migration and psychosis observed in Europe may not hold true in the United States. For instance, one prior study found no statistically significant associations between immigration and psychotic experiences among White, Black, Latinx, and Asian Americans (Oh, Abe, Negi, & DeVlyder, 2015). Granted, prior meta-analyses have tended to focus on psychotic disorders; however, examining subthreshold psychotic experiences has also been informative given their prevalence and their associations to negative health outcomes.

We sought to re-test the association between immigration status and psychotic experiences using data from the RAND American Life Panel ( $N = 2554$ ), which is nationally representative of adults (aged 18 and older) residing in the general population of the United States. Given our focus on psychotic experiences, we dropped 10 respondents who self-reported lifetime schizophrenia from our analyses. The majority of the weighted sample was born in the United States (91.16%,  $N = 2321$ ). Approximately 17.29% ( $N = 440$ ) of the sample reported a lifetime psychotic experience, with a slightly higher prevalence among US-born respondents (17.54%;  $N = 407$ ) when compared with foreign-born respondents (14.67%;  $N = 33$ ), though this difference was not statistically significant ( $F$ -statistic: 1.22;  $p = 0.27$ ). Approximately 26.17% ( $N = 635$ ) of the sample had a mental or substance use disorder. Using multivariable logistic regression, we found that immigrant status was significantly associated with lower odds of having lifetime psychotic experience, adjusting for sociodemographic characteristics (model 1). In other words, US-born respondents were 1.54 times as likely to have a lifetime psychotic experience than their foreign-born counterparts (aOR: 1.54; 95% CI: 1.02–2.33). However, this association attenuated and lost significance when additionally controlling for mental health and substance use disorders (model 2).

[Table 1]

While this analysis comports with previous null findings (Oh et al., 2015), the results again prompt us to consider why immigration is widely shown to be a risk factor for psychosis in

**Table 1.** Multivariable logistic regression model showing association between immigrant status and lifetime psychotic experiences (American Life Panel, February–April 2019)

	Model 1 (N = 2541)		Model 2 (N = 2421)	
	aOR (95% CI)	p value	aOR (95% CI)	p value
Immigrant status				
Foreign-born	<b>0.65 (0.43–0.98)</b>	<b>0.04</b>	0.68 (0.43–1.09)	0.11
US-born	1.00	–	1.00	–

Descriptive statistics are weighted column percentages.

Psychotic experiences were measured using an abbreviated version of the WHO Composite International Diagnostic Interview (CIDI) Psychosis Screen. Respondents were asked if they had ever experienced the following: (1) A feeling something strange and unexplainable was going on that other people would find hard to believe?; (2) A feeling that people were too interested in you or that there was a plot to harm you?; (3) A feeling that your thoughts were being directly interfered or controlled by another person, or your mind was being taken over by strange forces? and (4) An experience of seeing visions or hearing voices that others could not see or hear when you were not half asleep, dreaming, or under the influence of alcohol or drugs? Endorsing any of these experiences constituted lifetime psychotic experience.

Model 1 is adjusted for age (18–25, 26–44, 45–64, 65+), sex (male, female), education (less than high school, some high school but no diploma, high school graduate or equivalent, some college but no degree, professional school degree, Associate's degree, Bachelor's degree, Master's degree, Doctoral degree), income (less than \$25 000, \$25 000– 49 999, \$500 000– 74 999, \$75 000– 99 999, \$100 000– 124 999, \$125 000– 199 999, \$200 000 or more), and race/ethnicity (White, Black, Latinx, Other).

Model 2 is adjusted for all covariates in model 1, plus self-reported mental health disorder (bipolar disorder, depression, anxiety, post-traumatic stress disorder) or substance use disorder (alcohol dependence, opioid dependence, other substance use disorder).

other countries, but not in the United States. The aforementioned healthy selection hypothesis seems like a plausible explanation, combined with the restrictive US immigration policies that have been enacted over the years that have generally prioritized immigrants who are entrepreneurs and skilled professionals. Further, it is unclear whether there is also a selection bias resulting from people with psychotic experiences staying in their countries of origin. It is true that symptoms such as thought disorders, delusions, and negative symptoms can interfere with one's ability to plan and execute a difficult and stressful move to another country; however, most people with psychotic experiences will not exhibit symptoms that reach a clinical level of impairment or distress. That said, studies have shown that psychotic experiences have been associated with non-psychotic psychiatric disorders (DeVylder, Burnette, & Yang, 2014) chronic health conditions (Scott et al., 2018), disabilities (Oh, Koyanagi, Kelleher, & DeVylder, 2018), and shorter lifespan (Sharifi et al., 2015), and these health issues may hinder an individual to move to another country.

Our models should be interpreted with an awareness of its limitations. First, we used sampling weights to account for non-response and probability of selection using population distributions from the Current Population Survey Annual Social and Economic Supplement (provided by the US Census Bureau) (Pollard & Baird, 2017). However, the sample likely suffered from selection bias, as the survey was only administered in English and likely excluded the significant portion of immigrants who have limited English proficiency. Second, while RAND ALP provided computers and internet service to those who would not otherwise be able to participate in the panel, it is possible that immigrants (particularly those who are undocumented) may still have been wary of participating out of fear of being monitored and deported. Third, while we used a validated measure of psychotic experiences, we only used a crude dichotomous measure of immigration that did not capture age of immigration, years residing in the United States, and level of acculturation. Finally, we did not have enough statistical power to explore the presence of effect modification by race/ethnicity, and so we were unable to speculate about the circumstances of migration (e.g. where immigrants originated from and where they settled in the country) and how migrants were received in their geographic, social, and historical contexts, which may modify the association between immigration

and psychotic experiences. Future studies can make strides toward unravelling the epidemiological paradox by overcoming these methodological limitations with prospective studies of diverse samples, examining the presence of psychotic experiences pre- and post-migration, comparing those who migrate with those who remain in their countries of origin.

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