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An "immigrant paradox" for adolescent externalizing behavior? Evidence from a national sample

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Abstract

Purpose—Recent decades have witnessed a rise in the number of immigrant children in the United States (US) and concomitant concerns regarding externalizing behaviors such as crime, violence, and drug misuse by immigrant adolescents. The objective of the present study was to systematically compare the prevalence of externalizing behaviors and migration-related factors among immigrant and US-born adolescents in the US.

Method—Data on 12 to 17 year olds (Weighted *N* in thousands = 25,057) from the National Survey on Drug Use and Health (NSDUH) R-DAS between 2002 and 2009 were used. The R-DAS online analytic software was employed. Prevalence estimates and 95 % confidence intervals were calculated adjusting for the complex survey sampling design.

Results—Compared to their US-born counterparts, immigrant adolescents—particularly those between the ages of 15 and 17 years—are significantly less likely to be involved in externalizing behaviors. In addition, later age of arrival and fewer years spent in the US were associated with reduced odds of externalizing behavior. Supplementary analyses indicate that the link between nativity and externalizing behavior may be primarily driven by differences between US-born and immigrant youth who self-identify as non-Hispanic black or Hispanic. Immigrant adolescents are also more likely to report cohesive parental relationships, positive school engagement, and disapproving views with respect to adolescent substance use.

Conclusions—This study extends prior research on the "immigrant paradox" to externalizing behavior among adolescents using a nationally representative data source. Findings highlight the

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Compliance with ethical standards

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

importance of examining age, age of arrival, duration, and race/ethnicity in the study of nativity and externalizing.

Keywords

Immigrant paradox; Substance use; Violence; Crime; Acculturation

Introduction

Immigration to the United States (US) has increased precipitously over the last four decades as the total number of foreign-born individuals more than quadrupled between 1970 and 2010 [1]. According to the US Census Bureau [2], the total immigrant population has never been higher, with more than 40 million foreign-born individuals— roughly 13 % of the total population—currently residing in the US. Not since the early twentieth century has such a large proportion of the nation's population been comprised immigrants and other foreign-born individuals [3]. Notably, we have witnessed particularly robust population growth among children in immigrant families. Indeed, child immigrants and children of immigrant parents currently account for close to one-quarter of all youth, and this segment is growing faster than any other population of young people (i.e., ages 17 and under) in the country [4]. Simply put, the US demographic profile is changing rapidly punctuated by a substantial influx of immigration that has begun to reshape the nation and promises to do so well into the future.

Migration to the US is not a new phenomenon and there is a long history of public disquiet during periods of influx in the foreign-born population [5]. In recent years, the dramatic demographic shift in the foreign-born population has been met with rising concern that immigrants may present a threat to American society [6], particularly with respect to increases in violence, crime, and other high-risk and antisocial behaviors [7]. Importantly, however, a growing body of research on the "immigrant paradox" suggests that such concerns are likely ill-founded. Indeed, the bulk of evidence to date indicates that, despite experiencing greater social disadvantage compared to US-born Americans, immigrants in general are less likely to take part in violence and crime [8–11], misuse alcohol and drugs [12–14], and experience a wide array of adverse behavioral and health outcomes [15–18]. That stated, one important caveat should not be overlooked: evidence also suggests that the protective effects of nativity tend to decrease as individuals spend longer amounts of time in the US, particularly among those who immigrate during early childhood [19, 20]. This finding has led some to question whether "becoming American" may function as a source of developmental risk with regard to the health and well-being of immigrant youth [21].

A number of theoretical explanations have been put forth to make sense of the protective relationship between nativity and externalizing behavior, as well as the apparent attenuation of effects over time. One explanation is the "healthy immigrant effect"—that immigrants tend to self-select, such that they are more psychologically motivated and less inclined to take part in behaviors that might interfere with their occupational and educational advancement. In such a framework, ecodevelopmental factors such as positive school engagement are conceptualized as playing an important role with respect to the protection of

youth from involvement in externalizing behavior. Buriel [22] notes that adverse acculturation-related experiences may serve to diminish the protective effects of selection over time. This observation is consistent with prospective studies suggesting that factors such as bicultural stress, perceived discrimination, and negative context of reception are predictors of externalizing among immigrants [23–26]. That said, it should be noted that, though highly pertinent to adults, the healthy immigrant effect may not necessarily be as relevant for youth given that children and adolescents tend to have a less active role in deciding to immigrate (thereby, potentially weakening selection effects). The healthy immigrant effect may also be less relevant to child migrants (i.e., age 11 or younger) than to those who migrate during adolescence (i.e., ages 12–17 years). Another explanation, referred to as the "cultural armamentarium hypothesis", posits that immigrants from primarily collectivist cultures may benefit from adaptive ecodevelopmental (e.g., family support) and intrapersonal (e.g., anti-drug use norms) factors that provide tightly wound social and cultural supports that protect against involvement in externalizing and high-risk behavior [9]. Along these lines, it is plausible that religiosity, which has been found to be protective for externalizing behavior among youth in the general population [27, 28], may also exert a protective effect among immigrant youth. Marks and colleagues [29] note that the erosion of such protective processes may explain the decrease in protective effects of foreign nativity over time. Finally, immigrants, many of whom have made a long and difficult journey to the US, have a lot to lose, including deportation and fears of a foreign criminal justice system. With such high stakes, immigrants—particularly those who are undocumented— may be more averse to involvement in risky behavior [30].

Despite the contributions of previous research, a number of additional steps need to be taken. First, a recurring limitation is that the bulk of research comparing the prevalence of externalizing behavior between immigrant adolescents and their US-born counterparts has been conducted with relatively small and/or geographically limited samples [8, 19] or with samples examining youth from one particular national or ethnic group [31]. Such sampling limitations raise important questions as to the generalizability of the association between nativity and externalizing behavior. Second, among those studies using nationally representative data, there is a tendency to examine externalizing behavioral outcomes in only one domain—for example, focusing exclusively on either substance use or violence—thereby precluding a comparison of effect sizes across outcomes. Third, cutting-edge studies have advanced our understanding of the relationship between key ecodevelopmental (e.g., parental and school-related) and intrapersonal (e.g., normative beliefs, religious beliefs) factors in the etiology of externalizing behavior among immigrant youth [32–36]; however, less is understood in terms of the ways in which migration-related (i.e., age of arrival, duration in the US) and developmental factors may impact the link between nativity and ecodevelopmental and intrapersonal constructs.

The present study

The present study uses data from a large and long-running population-based survey [i.e., The National Survey on Drug Use and Health (NSDUH) Restricted Data Analysis System (R-DAS)]. We systematically compared the prevalence of externalizing behaviors (i.e., violence, delinquency, and substance use) between immigrant and US-born adolescents in

the US. Additionally, we examine the ways in which migration-related (i.e., age of arrival, duration in the US) and developmental [i.e., younger adolescents (ages 12–14), older adolescents (ages 15–17)] factors impact the relationship between nativity and externalizing behavior among immigrants. With respect to the age of arrival, we contrast immigrant youth who arrived prior to age 12 or at age 12 years or older. While it is difficult to draw a precise "cut point" for age of arrival, age 12 years is often selected as it is related to roughly the onset of adolescence and other important social and developmental changes [9, 21]. For immigrant youth, it can be surmised that spending at least part of the adolescent period in one's country of origin might strengthen their ethnic identity or their ties to their family, thereby influencing the likelihood of participation in externalizing behavior. We also examine the impact of migration-related factors on the association between nativity and ecodevelopmental (i.e., parental relationships, school engagement) and intrapersonal constructs (i.e., normative beliefs, religious beliefs) of relevance to adolescent externalizing behavior.

Method

Sample and procedures

The present analyses were conducted using data from the NSDUH R-DAS between 2002 and 2009. The R-DAS utilizes multistage area probability sampling methods to select a representative sample of the US civilian, non-institutionalized population, aged 12 years or older. The R-DAS was utilized, rather than the standard NSDUH data file, because the latter does not contain information on the participants' nativity. A more detailed description of the NSDUH and R-DAS design and procedures is available elsewhere [37, 38]. In the current analyses, we used data from only immigrant and US-born adolescent respondents between the ages of 12 and 17 years (Weighted N in thousands = 25,057). The institutional review board (IRB) of the lead author's home institution does not require IRB oversight for studies conducted exclusively with publicly available and de-identified extant data.

Measures

Externalizing behavior—We examined nine measures of externalizing behavior in the domains of violence (i.e., serious fights, group fight, attack to injure), delinquency (i.e., theft, drug selling, carry handgun), and substance use (i.e., binge alcohol, cannabis, other illicit drugs). With the exception of binge alcohol use—operationalized as five or more drinks on one or more occasions in the past 30-days—all measures are in reference to the previous 12 months. Sample items include: "During the past 12 months, how many times have you carried a handgun?" and "During the past 12 months, how many times have you sold illegal drugs?" For each externalizing behavior, adolescents who reported one or more instances of involvement in that behavior were coded as 1, and all other youth were coded as 0.

Nativity and migration-related factors—Respondents were asked, "Were you born in the US?" Consistent with prior epidemiological studies, those reporting foreign birth were classified as immigrants, and all other participants classified as US-born [39, 40]. Individuals reporting foreign birth were also asked about their age at the time of arrival to

the US. Based upon this variable, two additional migration-related variables were calculated: age of arrival (0 = age 12 or older, 1 = prior to age 12) and years in the US (0 = 5 or more years, 1 = less than 5 years).

Ecodevelopmental and intrapersonal factors—We examined ecodevelopmental and intrapersonal variables related to parental relationships, positive school engagement, and normative and religious beliefs. Detailed information, including the variable prompts, response options, and corresponding coding structure, is provided in Table 4. Consistent with previous NSDUH-based studies, the response options for each of these items were dichotomized so as to enhance the interpretability of the results [41–43].

Socio-demographic factors—Demographic variables that we examined include age (12–14, 15–17), gender (male, female), race/ethnicity [non-Hispanic white, non-Hispanic black, non-Hispanic Asian, Hispanic, "other" (i.e., American Indian/Alaska Native, non-Hispanic more than one race)], total annual household income (<$20,000; $20,000–$49,999; $50,000–$74,999; $75,000 or more), and urbanicity (urban or rural based on census block-level designation).

Statistical analyses

Statistical analyses were conducted in several steps. First, we examined the prevalence of externalizing behavior among US-born adolescents and immigrant adolescents stratified by age of arrival and duration in the US. Next, we contrasted the prevalence of externalizing behavior among immigrant and US-born younger (ages 12–14) and older (ages 15–17) adolescents to determine whether age may have interacted with nativity to predict outcomes. Subsequently, we examined the association of nativity with ecodevelopmental and intrapersonal factors by age of arrival and duration in the US. Using the R-DAS online analytic software, prevalence estimates were adjusted for the complex survey sampling design using a Taylor series linearization. Finally, we conducted supplementary analyses to examine the degree to which differences in involvement in externalizing behavior can be identified among immigrants and US-born youth from different racial/ethnic groups (i.e., non-Hispanic white, non-Hispanic black, non-Hispanic Asian, and Hispanic). The R-DAS online data analytic software—the only software that can be used for R-DAS analyses—produces results for contingency table analyses and allows for sample stratification, but does not allow for regression-based or multivariate approaches. To facilitate comparisons with previous epidemiological studies, we manually calculated odds ratios and 95 % confidence intervals for the association between nativity and externalizing behavior on the basis of R-DAS contingency tables. As specified [44], odds ratios were considered to be statistically significant if the 95 % confidence intervals did not overlap the null value (i.e., 1.0).

Results

Socio-demographic characteristics of immigrant and US-born adolescents

Table 1 contrasts the socio-demographic characteristics of US-born adolescents with those of immigrant adolescents who had spent five or more years in the US and those who had resided in the US for fewer than 5 years. Compared to recently arrived immigrants and US-

born adolescents, immigrant adolescents who had spent more than 5 years in the US were disproportionately more likely to be between ages 15 and 17 years (56.3, 95 % CI 54.7–57.8), and nearly all reported arriving in the US before the age of 12 years (98.5, 95 % CI 98.0–98.8). Recently arrived immigrants— those reporting arrival within the last 5 years— had the highest proportion of male (54.3, 95 % CI 51.9–56.7), non-Hispanic Asian (22.4, 95 % CI 20.0–24.9), Hispanic (53.6, 95 % CI 50.9–56.3), low income (i.e., <$20,000 per year; 42.2, 95 % CI 39.6–44.8), and urban (94.0, 95 % CI 92.7–95.1) respondents. Recently arrived immigrants predominantly arrived at the age of 12 years or older (63.1, 95 % CI 60.8–65.3), but a notable proportion arrived at earlier ages (36.9, 95 % CI 34.2–39.4).

Supplementary analyses (not shown) also examined the socio-demographic characteristics of immigrant adolescents by age of arrival (i.e., prior to age 12, age 12 years or older) in the US. These analyses indicated noteworthy differences with respect to age and family income. Specifically, roughly four in five (79.2, 95 % CI 76.7–81.4) immigrants who arrived at the age of 12 years or older were older adolescents (i.e., ages 15–17 years) at the time of interview. In contrast, roughly half (49.2, 95 % CI 47.8–50.7) of the immigrants who arrived before the age of 12 years were older adolescents at the time of the interview. With respect to family income, a significantly smaller proportion of those who immigrated prior to age 12 years (28.1 %, 26.7–29.6) resided in families earning less than $20,000 per year, compared to those who immigrated at age 12 years or older (41.0 %, 38.0–44.2). Only minor differences in prevalence (i.e., ≤5.0 %) were identified among immigrants arriving before and after the age of 12 years in terms of gender, race/ethnicity, and urbanicity.

Are immigrant adolescents less likely to take part in externalizing behavior?

Preliminary analyses (not shown) indicated that immigrant adolescents in general were significantly less likely to be involved in most violent and delinquent behaviors—the exceptions being group fighting and theft—and all substance use variables examined, with odds ratios ranging from 0.45 (drug selling) to 0.86 (serious fight). Figure 1 and Table 2 display a more nuanced analysis of the link between nativity and externalizing behavior that accounts for age of arrival and duration in the US. Examining the role of time in the US, we found that recently arrived immigrants (i.e., <5 years in the US) were significantly less likely than US-born adolescents to report involvement in all externalizing behaviors except group fighting. Less consistent odds ratios were observed among immigrants who reported five or more years in the US. Specifically, immigrants who had been in the US for five or more years were less likely than US-born adolescents to report attacking to injure (OR = 0.78, 95 % CI 0.61–0.99), drug selling (OR = 0.56, 95 % CI 0.37–0.84), and use of all substances examined.

With respect to age of arrival in the US, those who arrived at age 12 years or older were significantly less likely to report getting into a serious fight (OR = 0.70, 95 % CI 0.54–0.93), attacking to injure (0.58, 95 % CI 0.36–0.95), drug selling (OR = 0.30, 95 % CI 0.11–0.81), and cannabis (OR = 0.33, 95 % CI 0.21–0.53) and other illicit drug use (OR = 0.65, 95 % CI 0.45–0.94) compared to US-born adolescents. Those who arrived prior to age 12 years were also significantly less likely to report attacking to injure (OR = 0.73, 95 % CI 0.58–0.92), drug selling (OR = 0.48, 95 % CI 0.32–0.73), carrying a handgun (OR = 0.70, 95 % CI

0.48–0.99), and the (binge) use of alcohol (OR = 0.62, 95 % CI 0.50–0.77), cannabis (OR = 0.57, 95 % CI 0.47–0.69), or other illicit drugs (OR = 0.76, 95 % CI 0.64–0.92).

Does the nativity–externalizing link vary by age?

We also examined the relationship between nativity and externalizing behavior among younger (ages 12–14 years) and older (ages 15–17 years) adolescent immigrants vis-a`-vis their US-born adolescent counterparts. As seen in Table 3, the odds ratios for all forms of externalizing behavior examined were lower among both younger and older adolescent immigrants as compared to their US-born adolescent counterparts. However, a closer assessment indicated—despite the lower odds ratios and corresponding point estimates—no significant differences between immigrant and US-born younger adolescents for any of the externalizing behaviors examined. In contrast, with the exception of serious and group fighting, older adolescent immigrants were significantly less likely than US-born youth to report involvement in most of the externalizing behaviors examined. Particularly large differences in prevalence were observed among older adolescents with respect to binge alcohol, cannabis, and other illicit drug use.

Links between nativity and ecodevelopmental/intrapersonal factors

Table 4 displays the odds ratios for the association of nativity with ecodevelopmental and intrapersonal factors, stratifying first by age of arrival and then by years in the US. The clearest pattern of results was identified among immigrants who have resided in the US for <5 years. Compared to US-born adolescents, these recently arrived immigrant youth were significantly more likely to report cohesive parental relationships, positive school engagement, and disapproving views with respect to adolescent substance use. Protective effects were also identified among immigrants residing in the US for five or more years in terms of parental conflict (OR = 1.27, 95 % CI 1.10–1.47), positive school engagement, and disapproval of marijuana use initiation (OR = 1.28, 95 % CI 1.13–1.46). However, the magnitude of the association between nativity and these factors was markedly weaker among adolescents who had been in the US longer. With respect to the analyses stratified by age of arrival, we identified— compared to US-born youth—protective effects for parental conflict, positive school engagement, and anti-alcohol/drug views among those arriving at both earlier and later ages. Notably, compared to US-born youth, effects for parental conflict and school engagement were markedly greater among immigrant adolescents arriving at age 12 years or older. No significant associations were identified with respect to religious beliefs.

Supplementary analyses: examining racial/ethnic differences

The conditions for immigration may vary drastically depending on the national origin and ethnicity/race of the immigrant group. As such, we conducted supplementary analyses (not shown) to examine the prevalence of externalizing behavior of immigrants and US-born adolescents across key racial/ethnic groups. The R-DAS contains data from immigrants who identified as non-Hispanic white (Weighted *N* in thousands = 357; 2.4 % of non-Hispanic white respondents), non-Hispanic black (Weighted *N* in thousands = 145; 4.0 % of non-Hispanic black respondents), non-Hispanic Asian (Weighted N in thousands = 350; 34.9 %

of non-Hispanic Asian respondents), and Hispanic (Weighted *N* in thousands = 834; 18.9 % of Hispanic respondents). To conservatively assess statistical significance, we examined whether or not the 95 % CIs for US-born and immigrant youth overlapped [45]. Stratifying across race/ethnicity created errors in the R-DAS system for the variables related to delinquency as the R-DAS data will not display results when the number of observations in a particular cell is low enough to create problems related to confidentiality. Consequently, we only present information related to violence and substance use.

Among non-Hispanic white and Asian youth, no significant differences in prevalence were identified between immigrants and US-born youth with respect to any of the violent or substance use outcomes examined. However, a number of significant differences were identified among US-born and immigrant non-Hispanic black youth. Specifically, non-overlapping 95 % confidence intervals were observed for serious fights (US-born: 30.2, 95 % CI 29.5–31.0; immigrant: 20.5, 95 % CI 17.5–23.8), group fights (US-born: 20.8, 95 % CI 20.2–21.5; immigrant: 12.3, 95 % CI 10.0–15.0), attacking to injure (US-born: 13.1, 95 % CI 12.6–13.7; immigrant: 6.3, 95 % CI 4.7–8.5), and cannabis use (US-born: 12.6, 95 % CI 12.0–13.1; immigrant: 6.8, 95 % CI 4.9–9.3). We also observed non-overlapping confidence intervals among Hispanic youth for serious fights (US-born: 26.0, 95 % CI 25.2–26.8; immigrant: 23.1, 95 % CI 21.6–24.6), attacking to injure (US-born: 8.5, 95 % CI 8.0–9.0; immigrant = 5.9, 95 % CI 5.1–6.8), binge alcohol use (US-born: 10.4, 95 % CI 9.8–11.0; immigrant: 7.9, 95 % CI 6.9–9.1), cannabis use (US-born: 14.2, 95 % CI 13.6–14.9; immigrant: 6.9, 95 % CI 6.0–8.0), and other illicit drug use (US-born: 12.9, 95 % CI 12.2–13.5; immigrant: 9.6, 95 % CI 8.5–10.8).

Discussion

Consistent with prior research, findings from the present study point to a relationship between nativity and externalizing behavior among adolescents in the US [8, 13, 19, 46, 47]. More precisely, we found that immigrants were significantly less likely than their US-born adolescent counterparts to report involvement in a variety of externalizing behaviors. Notably, however, evidence also points to important developmental differences, as our analyses indicated that the nativity–externalizing link, while quite robust among older adolescents (i.e., ages 15–17 years)—a time when the full flowering of externalizing is more likely to manifest—may be less relevant among younger adolescents (i.e., ages 12–14 years). It is well established that important differences exist with respect to initiation of externalizing behavior across the course of adolescence [48]. The present findings suggest that additional research is necessary to fully explore the developmental dynamics underlying involvement in externalizing behavior among younger and older immigrant adolescents and their US-born peers.

Our findings also shed light on the importance of migration-related factors as potential moderators of the relationship between nativity and externalizing behavior. Specifically, we found that the prevalence of violent, delinquent, and substance use behavior was lower among immigrants who had spent less time in the US (i.e., <5 years) and, to a lesser extent, among those who arrived in the US as adolescents (i.e., age 12 years or older). This pattern of results is in keeping with prior studies that have examined the impact of both of these

particular migration-related factors [19, 49–51] and, more broadly, the relationship between acculturation and health-risk behavior [14, 24, 52]. The contribution of the current study is unique, however, inasmuch as it provides evidence of a highly consistent pattern of results in which age of arrival and time spent in the US are similarly related to the prevalence of a wide array of behaviors across multiple externalizing domains.

Beyond their links with externalizing behavioral outcomes, we also found that age of arrival and time in the US have important implications in terms of the link between nativity and salient ecodevelopmental and intrapersonal protective factors. Although immigrants in general tend to report more positive parental relationships and school engagement, our results suggest that the protective effects of these factors may decrease with greater amounts of time in the US. In particular, we observed weaker protective effects among immigrants reporting earlier arrival in the US (i.e., prior to age 12 years) and having lived in the US longer (i.e., more than 5 years). This pattern of results is consistent with prior research conducted with smaller, geographically circumscribed studies that have highlighted the role of family-and school-related factors in changes in immigrant adolescent risk behavior and related outcomes over time [32–36]. Notably, we did not observe differences in effects with respect to the normative beliefs of immigrant youth arriving at younger ages and those having lived longer in the US. This is noteworthy, particularly in light of recent research highlighting the relationship between permissive views regarding drugs and actual drug use [53]. This seems to suggest that anti-drug views among immigrant youth are stable over time and among immigrants arriving at different ages. We also saw no significant difference with respect to religious beliefs which seems to suggest that immigrant status and acculturation are not strong predictors of religious engagement. Notably, this does not imply that religiosity is any less protective among immigrant youth than it is among US-born adolescents as we were not able to test such relationships. However, it does seem to suggest that, overall, immigrant youth in the current study are no more or less religious than their US-born counterparts.

Although findings from the present study should be interpreted judiciously, the current study may have some implications for practice. First, the overall findings from this study suggest that—beyond highlighting the ways in which immigrants and US-born youth are distinct—important differences can be identified within the population of immigrant youth. In particular, we see differences based on age of arrival and duration in the US. One implication of this finding is that intake forms and psychosocial assessments with immigrant youth should, at the very least, consider these constructs as relevant clinical data. Our findings also suggest that immigrant youth seem to benefit from a variety of important intrapersonal and ecodevelopmental protective factors, including cohesive parental relationships, positive school engagement, and disapproving views with respect to adolescent substance use. This finding may also be of relevance to clinical practice, as these factors can be leveraged by helping professionals seeking to support and foster the well-being of immigrant youth. Finally, our findings suggest that immigrant youth who have arrived at earlier ages and have spent more time in the US may face greater risk for involvement in externalizing behavior. This suggests that prevention efforts designed to address the needs of immigrant youth may benefit from being particularly mindful of those youth who immigrated earlier on in life and have spent longer periods of time in the US.

Study limitations

Findings from the present study should be interpreted in light of several limitations. First, although data between 2002 and 2009 were pooled to augment the analytic sample size, the R-DAS data are fundamentally cross-sectional. As such, we cannot speak to the within-person or causal links between nativity and externalizing behavior. Second, the R-DAS online analytic software—the only software that can be used with R-DAS data—does not allow for regression-based or multivariate analyses. We were therefore unable to make use of socio-demographic and other salient control variables. Although we utilized data stratification to assess the impact of migration-related and developmental factors on the link between nativity and externalizing, we cannot rule out the possibility that covariates may have impacted our findings. Third, the NSDUH targets the non-institutionalized civilian population of the US and excludes individuals from subpopulations such as hospitals and prisons, as well as those who do not have stable housing [37, 38]. While youth in shelters and group homes are included in the study, youth living in unstable housing conditions, such as those whose parents are migrant workers, are likely excluded from the sample and thereby limit the generalizability of the study findings. Finally, all data from the R-DAS are based on respondent self-report. As a result, it is possible that differences in externalizing behavior may have been influenced by differential patterns of under- or over-reporting among immigrant and US-born adolescents.

Conclusions

Findings from the present study indicate that, compared to their US-born counterparts, immigrant adolescents—particularly those between the ages of 15 and 17 years—are less likely to be involved in an array of externalizing behaviors. We also found that the link between nativity and externalizing behavior tended to be stronger among immigrants who have resided in the US for less time (i.e., <5 years) and, to a lesser degree, those who arrived later in their development (i.e., age 12 years or older). While findings should be interpreted with caution, the clinical and public health implications of the observed relationships are that the development of prevention programs for externalizing behavior should likely target immigrant youth who have migrated earlier on in their development and who report greater duration in the US. Longitudinal study designs that incorporate pre- and post-migration assessments are needed to fully explore the link between nativity and externalizing behavior.

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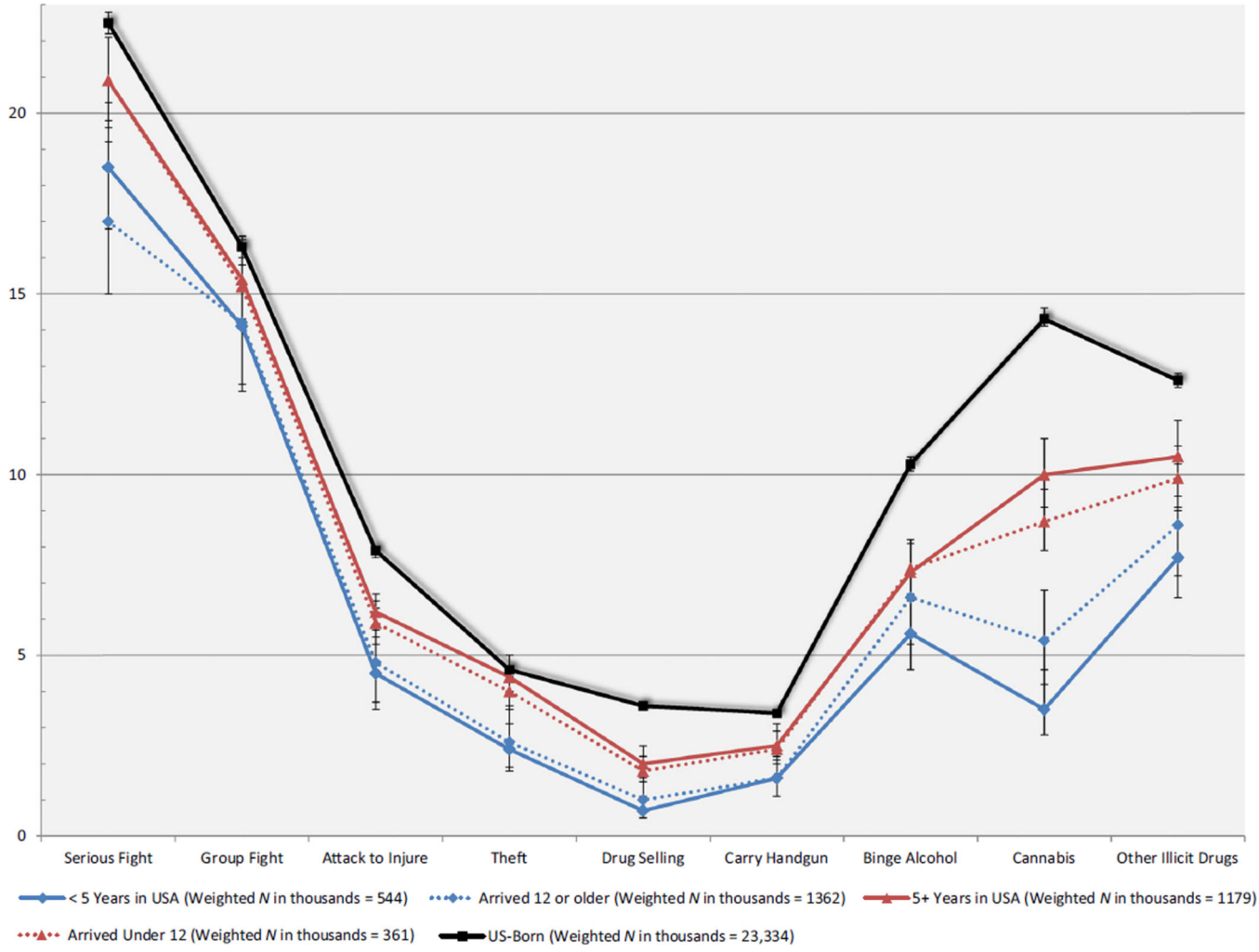

Fig. 1.

Prevalence of estimates and 95 % confidence intervals for externalizing behavior among US-born and immigrant adolescents, by age of arrival and duration in the US

Table 1

Socio-demographic characteristics of US-born and immigrant adolescents in the US

	Born in the US (Weighted *N* in thousands = 23,334)		Immigrant: 5+ years in the US (Weighted *N* in thousands = 1179)		Immigrant: <5 years in the US (Weighted *N* in thousands = 544)		Chi^2 significance
	%	95 % CI	%	95 % CI	%	95 % CI	
Socio-demographic characteristics							
Age							
12–14 years	49.6	(49.3–49.9)	43.7	(42.2–45.3)	46.2	(44.0–48.4)	$p< 0.001$
15–17 years	50.4	(50.1–50.7)	56.3	(54.7–57.8)	53.8	(51.6–56.0)	
Gender							
Female	49.0	(48.7–49.3)	49.0	(47.5–50.5)	45.7	(43.3–48.1)	$p< 0.05$
Male	51.0	(50.7–51.3)	51.0	(49.5–2.5)	54.3	(51.9–56.7)	
Race/ethnicity							
Non-hispanic white	63.5	(63.0–64.0)	23.6	(22.1–25.0)	14.6	(13.0–16.5)	$p< 0.001$
Non-Hispanic black	15.4	(15.0–15.7)	8.2	(7.3–9.1)	9.0	(7.7–10.4)	
Non-Hispanic Asian	3.1	(2.9–3.3)	20.8	(19.3–22.4)	22.4	(20.0–24.9)	
Other	2.7	(2.6–2.8)	1.4	(1.1–1.9)	0.4	(0.2–0.8)	
Hispanic	15.4	(15.0–15.7)	46.0	(44.2–47.9)	53.6	(50.9–56.3)	
Family income							
<$20,000	16.1	(15.8–16.5)	25.6	(24.1–27.2)	42.2	(39.6–44.8)	$p< 0.001$
$20,000–$49,999	32.3	(31.9–32.7)	40.0	(38.3–41.6)	38.2	(5.8–40.8)	
$50,000–$74,999	19.2	(18.9–19.5)	14.1	(13.0–15.2)	9.7	(8.2–11.4)	
$75,000 or more	32.4	(31.9–32.8)	20.4	(19.1–21.7)	9.9	(8.5–11.5)	
Urbanicity							
Rural	21.4	(20.8–22.0)	8.0	(7.1–9.0)	6.0	(4.9–7.3)	$p< 0.001$
Urban	78.6	(78.0–79.2)	92.0	(91.0–92.9)	94.0	(92.7–95.1)	
Age of arrival							
11 years or younger	–	–	98.5	(98.0–98.8)	36.9	(34.2–39.4)	$p< 0.001$
12 years or older	–	–	1.5	(1.2–2.0)	63.1	(60.8–65.3)	

Table 2

Odds ratios for externalizing behavior among immigrant adolescent by age of arrival and duration in the US

	Age of arrival at the US				Duration in the US			
	Age 11 years or younger (Weighted *N* in thousands = 1362)		Age 12 years or older (Weighted *N* in thousands = 361)		5+ years in the US (Weighted *N* in thousands = 1179)		<5 years in the US (Weighted *N* in thousands = 544)	
	OR	(95 % CI)	OR	(95 % CI)	OR	(95 % CI)	OR	(95 % CI)
Violence								
Serious fight at school or work	0.91	(0.79–1.04)	**0.70**	(**0.54–0.93**)	0.91	(0.79–1.05)	**0.78**	(**0.62–0.97**)
Group of friends fought against another group	0.93	(0.80–1.08)	0.85	(0.63–1.15)	0.94	(0.80–1.10)	0.84	(0.66–1.08)
Attack w/intent to seriously hurt	**0.73**	(**0.58–0.92**)	**0.58**	(**0.36–0.95**)	**0.78**	(**0.61–0.99**)	**0.55**	(**0.36–0.82**)
Delinquency								
Stolen/tried to steal anything (worth $50+)	0.88	(0.67–1.16)	0.54	(0.28–1.05)	0.95	(0.71–1.26)	**0.51**	(**0.30–0.89**)
Sold illegal drugs	**0.48**	(**0.32–0.73**)	**0.30**	(**0.11–0.81**)	**0.56**	(**0.37–0.84**)	**0.20**	(**0.07–0.54**)
Carried a handgun	**0.70**	(**0.48–0.99**)	0.48	(0.22–1.09)	0.75	(0.52–1.08)	**0.48**	(**0.25–0.94**)
Substance use								
Alcohol (binge use)	**0.62**	(**0.50–0.77**)	0.71	(0.48–1.05)	**0.69**	(**0.55–0.86**)	**0.51**	(**0.35–0.74**)
Cannabis	**0.57**	(**0.47–0.69**)	**0.33**	(**0.21–0.53**)	**0.66**	(**0.55–0.81**)	**0.22**	(**0.14–0.34**)
Other illicit drugs	**0.76**	(**0.64–0.92**)	**0.65**	(**0.45–0.94**)	**0.82**	(**0.67–0.99**)	**0.58**	(**0.42–0.80**)

Odds ratios (OR) and 95 % confidence intervals (95 % CI) in bold are statistically significant

Reference group = US-born adolescents (Weighted *N* in thousands = 23,334)

Table 3

Odds ratios for externalizing behavior among immigrant adolescent by duration in the US

	Younger adolescent (ages 12–14 years)		Older adolescent (ages 15–17 years)	
	Immigrants (Weighted *N* in thousands = 763)		Immigrants (Weighted *N* in thousands = 952)	
	OR	**(95 % CI)**	**OR**	**(95 % CI)**
Violence				
Serious fight at school or work	0.85	(0.71–1.01)	0.89	(0.76–1.06)
Group of friends fought against another group	0.85	(0.69–1.05)	0.96	(0.80–1.15)
Attack w/intent to seriously hurt	0.75	(0.54–1.03)	**0.66**	(**0.50–0.87**)
Delinquency				
Stolen/tried to steal anything (worth $50+)	0.76	(0.46–1.25)	0.78	(0.58–1.06)
Sold illegal drugs	0.40	(0.15–1.08)	**0.42**	(**0.28–0.63**)
Carried a handgun	0.58	(0.32–1.04)	**0.66**	(**0.44–0.98**)
Substance use				
Alcohol (binge use)	0.75	(0.47–1.22)	**0.55**	(**0.45–0.68**)
Cannabis	0.46	(0.29–0.75)	**0.46**	(**0.38–0.56**)
Other illicit drugs	0.94	(0.72–1.23)	**0.61**	(**0.50–0.76**)

Odds ratios (OR) and 95 % confidence intervals (95 % CI) in bold are statistically significant

Reference group = US-born adolescents (Weighted *N* in thousands = 23,334)

Table 4

Odds ratios for ecodevelopmental and intrapersonal factors among US-born and immigrant adolescents by age of arrival to the US

	Age of arrival to the US				Duration in the US			
	Age 11 years or younger (Weighted *N* in thousands = 1362)		Age 12 years or older (Weighted *N* in thousands = 361)		Immigrant: 5+ years in the US (Weighted *N* in thousands = 1179)		Immigrant: <5 years in the US (Weighted *N* in thousands = 544)	
	OR	**(95 % CI)**	**OR**	**(95 % CI)**	**OR**	**(95 % CI)**	**OR**	**(95 % CI)**
Ecodevelopmental factors								
Parental relationships								
Would you turn to your parents to talk about a serious problem?								
No	1.00		1.00		1.00		1.00	
Yes	1.06	(0.94–1.20)	1.18	(0.94–49)	0.97	(0.85–1.09)	**1.44**	**(1.18–1.76)**
Did you argue or have a fight with at least one parent? (10+ arguments in past year)								
Yes	1.00		1.00		1.00		1.00	
No	**1.39**	**(1.20–1.61)**	**2.17**	**(1.59–2.94)**	**1.27**	**(1.10–1.47)**	**2.38**	**(1.82–3.12)**
School engagement								
How did you feel about going to school during the past 12 months?								
Did not like very much/hated going to school	1.00		1.00		1.00		1.00	
Liked a lot/kind of liked going to school	**1.52**	**(1.2–1.79)**	**2.58**	**(1.69–3.93)**	**1.43**	**(1.20–1.70)**	**2.64**	**(1.87–3.72)**
Did your teachers let you know when you were doing a good job?								
Seldom/never	1.00		1.00		1.00		1.00	
Always/sometimes	**1.47**	**(1.26–1.73)**	**3.39**	**(2.15–5.36)**	**1.35**	**(1.15–1.60)**	**3.45**	**(2.38–5.01)**
Intrapersonal factors								
Normative beliefs								
How do you feel about someone your age having 1–2 drinks nearly every day?								
Neither approve/disapprove or somewhat disapprove	1.00		1.00		1.00		1.00	
Strongly disapprove	**1.17**	**(1.04–1.32)**	**1.32**	**(1.04–1.67)**	1.12	(0.98–1.27)	**1.41**	**(1.15–1.72)**
How do you feel about someone your age trying marijuana once or twice?								
Neither approve/disapprove or somewhat disapprove	1.00		1.00		1.00		1.00	
Strongly disapprove	**1.48**	**(1.16–1.89)**	**1.36**	**(1.21–1.54)**	**1.28**	**(1.13–1.46)**	**1.72**	**(1.41–2.11)**
Religious beliefs								
Are your religious beliefs a very important part of your life?								

	Age of arrival to the US				Duration in the US			
	Age 11 years or younger (Weighted *N* in thousands = 1362)		Age 12 years or older (Weighted *N* in thousands = 361)		Immigrant: 5+ years in the US (Weighted *N* in thousands = 1179)		Immigrant: <5 years in the US (Weighted *N* in thousands = 544)	
	OR	**(95 % CI)**	**OR**	**(95 % CI)**	**OR**	**(95 % CI)**	**OR**	**(95 % CI)**
Strongly disagree/disagree or somewhat agree	1.00		1.00		1.00		1.00	
Strongly agree	1.04	(0.93–1.17)	1.02	(0.82–1.27)	1.06	(0.88–1.27)	1.02	(0.90–1.16)
Do your religious beliefs influence how you make decisions?								
Strongly disagree/disagree or somewhat agree	1.00		1.00		1.00		1.00	
Strongly agree	1.02	(0.89–1.15)	0.95	(0.74–1.21)	1.02	(0.84–1.24)	1.00	(0.87–1.14)

Odds ratios (OR) and 95 % confidence intervals (95 % CI) in bold are statistically significant

Reference group = US-born adolescents (Weighted *N* in thousands = 23,334)