Natural Sciences

Comparing Health Outcomes Between Migrants and Native Spaniards

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Abstract

In 2012, Spain enacted a law which changed its Universal Health System from ensuring government funded healthcare for all residents, regardless of immigration status, to restricting migrant healthcare access. This study investigates health records from 2017, one year before this restrictive legislation was repealed, to determine if such legislative action coincides with disparities in health outcomes between migrants to Spain and native Spaniards. Because a health record analysis from 2012 suggests that migrants in Spain exhibited poorer overall health even before the legislative restrictions, we hypothesized that migrant communities would continue to demonstrate lower health outcomes than native Spaniards while these restrictions were enforced. We extracted nationality and health data from the Spanish Ministry of Health's 2017 National Health Survey. We grouped thirteen health sub-indicators into four main health indicators to compare the general physical and mental well-being of migrants and native Spaniards. These main indicators included disease prevalence, risk factors for future infirmities, mental health, and self-perceived health. After quantifying interviewees' responses, we compared population means of migrants and natives for each sub-indicator through an unpaired t-test of means to determine trend significance. We integrated the results of sub-indicator comparisons to determine overall trends in the four main indicators. With only one exception, all eight sub-indicators for disease prevalence demonstrated decreased prevalence among migrant populations which indicates lower overall disease for migrants compared to native Spaniards. This trend continued for self-perceived health as well as all sub- indicators used to assess mental health and predisposition to future illnesses. These results suggest that migrants in Spain are healthier than their native counterparts. The better health outcomes experienced by the migrants relative to native Spaniards contradict our hypothesis. Nevertheless, previous findings explain these results as demonstrative of an established phenomenon, the "healthy migrant effect," in which migrants typically demonstrate higher healthcare outcomes than their native counterparts. The observed "healthy migrant effect" despite legislative restrictions on migrant healthcare access, as well as the effect's apparent disappearance during the aftermath of Spain's 2008 economic recession, suggests that the health disparities between migrants and natives correlated more directly with a nation's economic well-being than their legislative actions.

INTRODUCTION

In 2012, Spain passed a law that significantly restricted healthcare access for several migrant groups, including undocumented immigrants, asylum seekers, and those remaining beyond their legally allotted stay (Real Decreto-Ley 16/2012, 2012). Under the new rules, these groups were only entitled to free medical services in cases of emergency, pregnancy, or childbirth. Outside of these circumstances, they were required to pay out-of-pocket, causing a significant financial burden to those with limited resources (Hsia & Gil-González, 2021). These restrictions resulted in a loss of coverage for over half a million people living in Spain, including an estimated 160,000 migrants (Gonzalez de Durana & Moreno-Fuentes, 2016).

In 2018, the Spanish government restored access to healthcare services for all residents of Spain, regardless of their legal status (Real Decreto-Ley 7/2018, 2018). However, depriving undocumented migrants of routine medical care during the six-year period in which the 2012 Decree-Law remained in effect may have resulted in the deterioration of migrants' health. Therefore, this study compares national health outcomes across various metrics between migrants living in Spain and native Spaniards. The comparison was intentionally performed on data from 2017, the final year of enforcement of the 2012 restrictions, to determine if these legal changes correlated to health disparities between the two populations.

Previous research has suggested that migrants in Spain exhibit better health outcomes than their native counterparts as part of a phenomenon termed the "healthy migrant effect" (Gimeno-Feliu et al., 2015). However, this research was performed on data collected in 2010, before the restrictive Decree-Law's passing; therefore, these results would not reflect any inequalities that might have arisen after the restrictions of 2012. Furthermore, the study only analyzed health records of persons residing in the community of Aragon rather than the entirety of Spain, limiting the national applicability of observed trends.

In contrast, similar research conducted by Gotsens on data collected in 2012 indicates that migrants reported lower self-perceived health than natives before the change in legislation took effect. Furthermore, the researchers found that mental health in immigrant men was significantly worse than that of their native counterparts (Gotsens et

al., 2015). The data utilized was not limited by geographic region and suggested that, even before the implementation of the restrictions, migrants exhibited lower health when compared with native-born Spaniards.

Therefore, the conflicting results in previous research, in conjunction with the 2012 legal restrictions, require further investigation into possible health disparities between Spanish migrants and natives. This study seeks to expand upon the previous research by performing a national comparison between the health outcomes of migrants and native Spaniards in 2017, six years after the implementation of the restrictions. This research is intended as a preliminary analysis to inform future investigation of the effect of restrictive legislation on migrant health. Because of the obstacles migrants faced in accessing healthcare and the national trends already observed in 2012, we hypothesized that in 2017, migrants would exhibit poorer outcomes across all four indicators compared to Spanish natives.

METHODS

DATA

We extracted self-reported health data from the Spanish Government's 2017 National Health Survey (Ministerio de Sanidad, 2017). In collaboration with the National Institute of Statistics, the Ministry of Health, Consumer Affairs, and Social Welfare carries out this annual national survey by collecting health information from 23,860 Spanish households via interviews with questionnaires. Of the three questionnaires employed in data collection, only responses to the adult version were analyzed. The questions asked during these interviews addressed four major areas of research: sociodemographics, health status, use of health services, and determinants of health. Fieldwork for data collection occurred from October 2016 until October 2017 and included a sample size of 23,089 individuals aged 15 and over.

DATA PREPARATION

We first filtered by age to remove respondents younger than 21 since adolescents and children are unlikely to suffer from certain infirmities that we used as health indicators, such as coronary heart disease, stroke, and high blood pressure (Heart Disease Prevalence, 2023; Ekker et al., 2019; Yechiam Ostchega et al., 2020). Moreover, including respondents under 21 could increase the difficulty of deducing health trends. We divided the respondents into Spaniards and migrants based on their place of birth, either in Spain or a foreign country ($n = 19{,}926$, $n = 1{,}923$ respectively). We removed Spaniards born abroad but residing in Spain from the migrant pool by removing those who both held Spanish citizenship and lacked foreign citizenship from the migrant group. The mean age and standard deviation of the migrant and native Spaniard groups were 43.02 ± 13.42 years and 43.02 ± 13.42 years, respectively. Furthermore, of the migrants who responded to the survey, 837 were men, and 1,086 were women. Of the native Spanish respondents, 9,162 were men, and 10,764 were women.

INDICATORS

The four main health indicators that we used to deduce overall group health were disease prevalence, self-perceived health, disease risk factors, and mental illness prevalence. For disease prevalence, we evaluated the incidence of diseases that the World Health Organization identified as the leading causes of death in lower-middle, upper-middle, and high-income countries (World Health Organization, 2020). These sub-indicators included heart disease measured by the prevalence of myocardial infarction, coronary heart disease and other heart diseases, stroke, diabetes, liver disease, cancer, and kidney disease. For each pathology, interviewers asked subjects, "Do you suffer or have you ever suffered from any of these [pathologies]?" (Encuesta Nacional de Salud, 2017). Subjects that answered "yes" to ever having suffered from the pathology were considered disease-positive.

We identified high blood pressure and high cholesterol as sufficient indicators for assessing predisposition for future diseases because of their ties to increased risk of stroke and heart disease (Center for Disease Control, 2011). For these sub-indicators, interviewers followed the same questioning protocol as with disease prevalence sub-indicators (Encuesta Nacional de Salud, 2017). Because previous research demonstrated that self-perceived health status functions well as a health indicator, we also used this metric to assess health outcomes (Sokoya et al., 2022). Interviewers assessed self-perceived health by asking: "In the last twelve months, would you say that your state of health has been very good, good, fair, poor, very poor?" (Encuesta Nacional de Salud, 2017). Interviewers assigned responses a number value from one, very good, to five, very poor. Finally, we evaluated mental illness prevalence using rates of depression and anxiety. The question phrasing and response recording protocols were identical to those used for disease prevalence and risk factor sub-indicators.

STATISTICAL ANALYSIS

All statistics except self-perceived health were binary answers for each respondent, with "1" indicating that they suffered from the pathology and "2" indicating that they were pathology-free. We removed statistically irrelevant responses such as "I don't know," assigned a value of 8, and "Did not respond," assigned a value of 9. Nevertheless, the population's response rate for all indicators evaluated always remained over 99.8%.

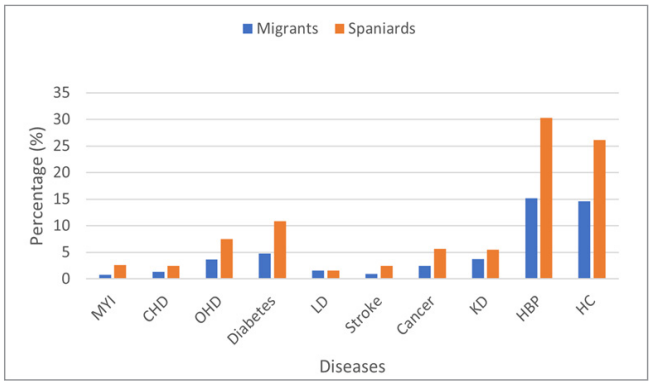
We calculated the percentage of both the migrant and Spanish populations suffering from each sub-indicator as a preliminary analysis. Additionally, we compared population means with higher values denoting better health outcomes for binary indicators. We assessed the statistical significance of differences between population means via a t-test performed using the EXCEL Data Analysis tool kit ($p < .01$). We applied the same process to the sub-indicators

of the three sub-divided main indicators, such as disease prevalence, mental health, and predisposition risk. The state of the final indicator was deduced based on sub-indicator outcomes.

RESULTS

Figure 1

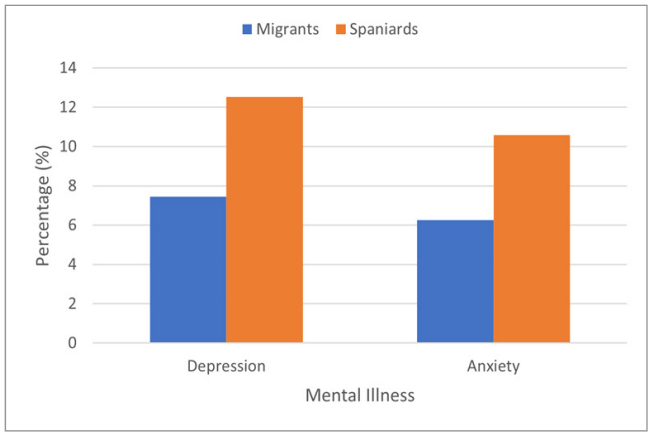
Percentage Difference in Prevalence and Predisposition Sub-Indicators



Note. Comparison of percentage in disease prevalence and predisposition sub-indicators between migrants and Spaniards reveals that migrants exhibited lower percent prevalence for all sub-indicators except for liver disease (LD). Other abbreviations stand for myocardial infarction (MYI), coronary heart disease (CHD), other heart diseases (OHD), kidney disease (KD), high blood pressure (HBP), and high cholesterol (HC).

Figure 2

Percentage Difference in Mental Illness Prevalence

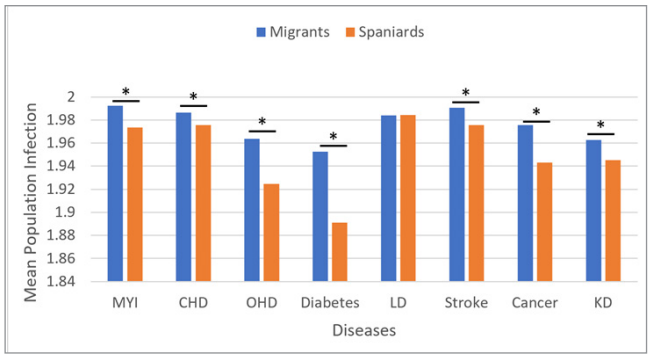


Note. Comparison of the percentage mental illness prevalence among migrants and Spaniards suggests that migrants have better mental health.

For every binary indicator, migrants experienced a lower percentage prevalence. This suggests that, overall, migrants suffer from lower incidences of disease and mental illnesses (Fig. 1, 2).

Figure 3

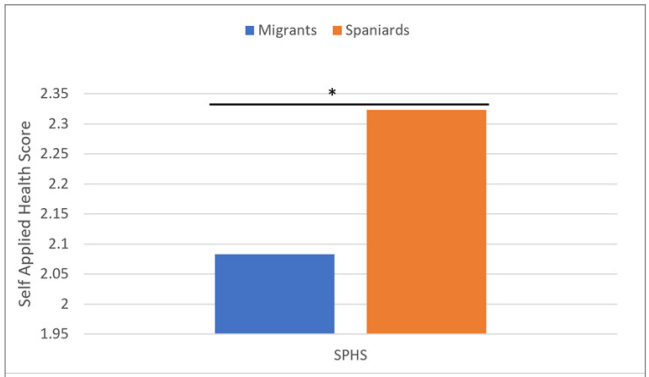
Analysis of Difference in Disease Prevalence Indicators



Note. Mean differences in infections between migrants and Spaniards demonstrates significantly lower mean rates of disease for all indicators except liver disease (p = .89). A response of one indicated that the respondent suffered from the illness and a two indicated they were disease free Statistical significance is indicated by the asterisk (p < .001).

Figure 4

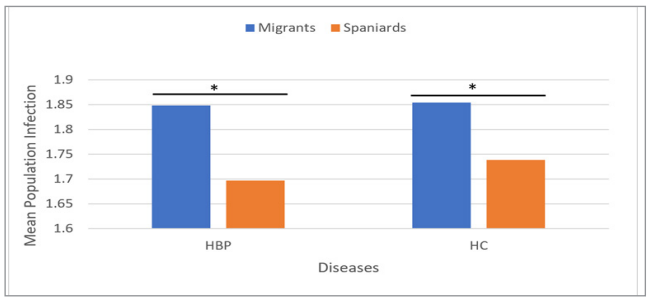
Analysis of Difference in Self-Perceived Health Status



Note. Mean differences in self-perceived health status (SPHS) indicates that Spaniards rated their health as worse than migrants. Self-applied health scores were provided by respondents on a scale from one to five, with one being optimal health and five being terrible health Statistical significance is indicated by the asterisk (p < .001).

Figure 5

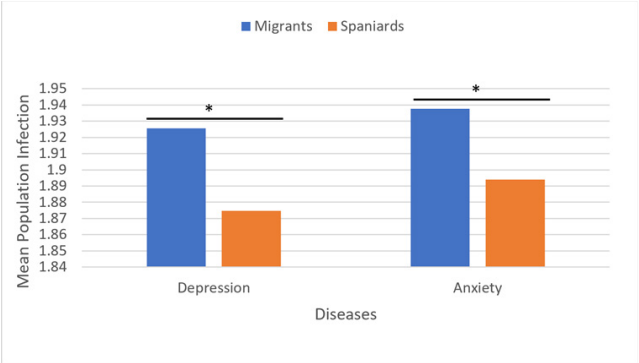
Analysis of Difference in Future Disease Indicators



Note. Mean differences in future disease risk factors indicates that migrants exhibited better health profiles for avoiding future diseases such as heart disease and stroke. A response of one indicated that the respondent suffered from the illness and a two indicated they were disease free. Statistical significance is indicated by the asterisk (p < .001).

Figure 6

Analysis of Difference in Mental Health Indicators



Note. Mean differences in mental health indicators demonstrate that migrants exhibited significantly better mental health than Spaniards. A response of one indicated that the respondent suffered from the illness and a two indicated they were disease free. Statistical significance is indicated by the asterisk ($p < .001$).

All sub-indicators for disease prevalence except for liver disease demonstrated a significantly healthier mean prevalence among migrant populations (Fig. 3). Therefore, overall disease prevalence is lower for migrants than for native Spaniards. Self-perceived health also demonstrated significantly better outcomes for migrants than for Spaniards (Fig. 4). Likewise, both high blood pressure and high cholesterol were significantly more prevalent among the native Spaniard population, suggesting lower predisposition to future illnesses among migrants (Fig. 5). Finally, both depression and anxiety were significantly lower for migrants suggesting overall better mental health (Fig. 6).

DISCUSSION

Due to recent restrictive legislation and prior research, we hypothesized that migrants would demonstrate poorer outcomes in health indicators than native Spaniards. However, results demonstrate the opposite. Migrants demonstrate a significantly lower prevalence of the infirmities considered (Fig. 1, 2). This was the case for all sub-factor pathologies observed except liver disease; however, the lack of a significant difference in liver disease incidence between the two groups prevents us from drawing broader conclusions from this exception (Fig. 3). Furthermore, migrants demonstrated lower predisposition to future ailments than native Spaniards, as well as better mental health and higher self-evaluation of their health (Fig. 4-6).

THE HEALTHY MIGRANT EFFECT

Although contrary to the hypothesis, we believe that these results might confirm the national presence of the "healthy migrant effect" in Spain during 2017. This heavily researched trend explains that migrants originating from low-income countries tend to experience better health than the native population of their high-income destination country (Norman et al., 2005). There are several hypothesized explanations for this trend. One is that long-distance migration requires good health and strength; therefore, migrants are typically young and healthy (Ruhnke et al., 2022). Conversely, sick and elderly people residing in low-income countries typically remain in their country of origin, which further increases the observable health of foreign migrants relative to natives. Finally, those with the financial resources to migrate often also had the financial resources to receive quality healthcare in their country of origin (Norman et al., 2005).

These results corroborate the findings of Gimeno-Feliu (2015) that migrants in Spain exhibit the "healthy migrant effect." However, this research expands upon the regional study to suggest that Spain may experience the "health migrant effect" on a national level. If such is the case, the results would further suggest that the restrictions implemented in 2012 did not reverse the "health migrant effect" and introduce health disparities. Therefore, the conclusions of this study suggest that the "healthy migrant effect" persisted throughout Spain during the implementation of legislative restrictions on healthcare access for migrants.

READDRESSING ORIGINAL EVIDENCE

The findings of Gotsens (2015), on which we based our original hypothesis, contradict our results that migrants have better health outcomes. We can reconcile their results with our conclusions because this study observed the disappearance of the "healthy migrant effect" during times of financial crisis. In 2012, Spain experienced the major ramifications of the 2008 recession. Spain's GDP experienced a near-constant decline since the onset of the recession, and unemployment had grown to 25%, its highest in almost 20 years (The World Bank; Spain Unemployment Rate). During economic hardship, migrant communities, many of which had appeared because of labor demands and economic opportunity, often encounter greater financial difficulty and mental stressors than their native counterparts. This explanation supports Gotsens's observation that the self-perceived health and mental health of migrants decreased during this period since these indicators change most readily in response to immediate stressors. However, Gotsens did not analyze disease prevalence as an indicator of good health.

By 2017, when the data for this study was collected, Spain had made a full economic recovery. Unemployment had decreased by almost 10%, and GDP steadily recovered after a four-year period of economic growth (Spain Unemployment Rate; The World Bank). Given this rapid economic recovery, it is unsurprising that our investigation revealed improved self-perceived and mental health outcomes as restitution of the "health migrant effect" followed the recovery.

Therefore, Gotsens conclusions about worsening self-perceived and mental health during economic crises may be correct. However, our findings suggest the need for further research on the impact of economic hardships on migrant health to extrapolate full conclusions about the

"healthy migrant effect" during recessions.

POLICY APPLICATIONS

This research suggests that economic factors rather than legislative restrictions seem to have a greater impact on migrant health and well-being. This claim is supported by the observation that despite the implementation of legal restrictions on healthcare access, migrants continue to exhibit better health outcomes than natives. However, previous research indicating the disappearance of this effect during economic recessions suggests that policymakers should implement legislation to ensure adequate access to mental health services for migrants experiencing financial turmoil.

LIMITATIONS

Several key limitations prevent us from forming firm conclusions about the comparative state of migrant healthcare in Spain. First, migrants were not separated based on their origin countries. This limitation is likely to have greatly affected outcomes as migrants from other EU countries with robust healthcare systems would likely have better healthcare outcomes in Spain than those from countries with a less robust healthcare system. Additionally, migrants from Spanish-speaking countries may more easily integrate into the Spanish medical system and socio-cultural environment; however, sub-Saharan migrants may experience more difficulty with accessing medical care. Furthermore, the possible lack of opportunity to receive a diagnosis in the country of origin, paired with the self-reported nature of the data, may have caused an undercounting of disease occurrence in migrants owing to their lack of personal health knowledge. Second, we did not separate migrants based on socioeconomic level. Although lower-middle and upper-middle-income countries may have poorer healthcare systems, healthy citizens of these nations could still access high-quality healthcare provided they have the resources. Therefore, adjusting for socio-economic level would have likely resulted in conclusions that more accurately reflect the average migrant experience. Third, the small sample size of migrant respondents relative to natives also limits the applicability of observed trends. Finally, the implementation of the legislative restrictions adopted in 2012 varied greatly among the different regions of Spain (Gonzalez de Durana & Moreno-Fuentes, 2016). However, our analysis did not account for the community in which the migrants resided and the relative strictness with which the restrictions were implemented. Accounting for these factors may greatly influence the results of this analysis and would have increased the conclusions' accuracy. Thus, future investigations should seek to account for these factors by selecting larger datasets and controlling for subjects' country of origin, socioeconomic level, and place of residence.

AUTHOR CONTRIBUTIONS

JPL performed all statistical analysis, wrote the methods and results sections, and wrote portions of the conclusion. LLG performed a background investigation, wrote the introduction section, and wrote portions of the conclusion.

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CONFLICT OF INTEREST

There is no conflict of interest. This research was performed by students from Vanderbilt University and Texas Christian University while participating in a study abroad program at Carlos III University of Madrid. Neither author received any funding for their work and neither reports any connection to migrants living in Spain.

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About the Author: John Paul "JP" Libanati is a senior undergraduate student studying biomedical engineering and philosophy at Vanderbilt University. His passion for medical care, public health, and migrant communities led him to investigate the health of migrants in Spain compared to native Spaniards. His research served as a culminating project for a sociology class on migrations in the context of the European Union. JP completed this research in the spring of 2023 while studying abroad at Carlos III University in Madrid, Spain.

After graduating, JP will participate in a Fulbright Research Fellowship on the health needs of sub-Saharan migrants living in Morocco. He intends to use the results from this experience to guide his future research while pursuing an MD/PhD in low-resource biomedical engineering for applications in low- and middle-income countries.

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