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Epidemiology of diagnostic-level psychiatric symptoms in primary care: A comparison of immigrants to native Spaniards.

Abstract

Objective

The aim of this paper is to explore the prevalence of psychiatric morbidity in different immigrant groups in Spain. In keeping with prior studies carried out in Europe, it is expected that the immigrant population will have elevated levels of psychopathology, with some variation across immigrant groups.

Method

Design: Multicenter, observational, cross-sectional study. Setting: Primary care settings of two Spanish regions. Sample: N=1.503 immigrants paired with the same number of Spanish controls, adjusted by gender and age. Variables: Demographic variables, MINI International Neuropsychiatric Interview and Standardized Polyvalent Psychiatric Interview (SPPI), somatic symptoms section. T Student tests, ORs and logistic regressions were used to analyze the data.

Results

No differences in psychiatric morbidity were found (native born 30.9%, population vs. immigrants 29.6%, OR= .942, CI=.806-1.100) when comparing immigrants to native born Spaniards. Relative to Spaniards (30.9%), Latin American immigrants had significantly higher levels of psychopathology (36.8%), Sub-Saharan Africans (24.4%) and Asians (16%) had significantly lower levels, and Eastern Europeans (31.4%) and North Africans (26.8%) showed no significant difference.

Conclusions

The hypotheses were only partially supported. Although overall immigrants did not differ from the native born population, when analyzed by geographic origin, only Latin Americans had higher levels of psychopathology. It is concluded that multiple factors need to be taken into consideration when studying the mental health of immigrants given that different immigrant groups have different levels of psychopathology.

Introduction

The relationship between immigration and psychopathology is unclear, as are the specific factors that may impact the process. Recent large scale epidemiological studies carried out in the United States found that immigrants had lower rates of common mental disorders (1,2), whereas studies carried out in Europe--Belgium (3) and Sweden (4), for example--found the opposite. In their meta-analysis on migration and mood disorders Swinnen & Selten (5) found a very slim, non-significant increase in risk in immigrants, and Kirmayer et al. (6), in their review, found that immigrants had slightly lower levels of mental disorders than the general population. It would appear, however, that immigrants to Europe, particularly those from the Caribbean and Africa, are vulnerable to developing psychotic disorders, and to a lesser extent affective disorders, as evidenced by a series of recent metanalyses (7–9). It is noteworthy that in the studies cited above and others (10), the prevalence of psychopathology varies, at times significantly, between different immigrant groups. This may be due to differential impact of the factors that are understood to comprise the principle risk, such as "social defeat" (8), cultural dissimilarity (11) and racism or discrimination (6).

Just as psychopathology may vary by immigrant groups, it follows that it would vary by environment or social context (12) there would appear to be a sort of « geopolitical effect » evidenced by differential findings in studies carried out in the United States and Canada which tend to show lower levels of psychopathology, as opposed to those carried out in Europe which show the reverse. Thus it may be the case that to speak of « immigration and mental health » without taking into consideration the receiving country may be overly reductionistic. There is both conceptual (12) and empirical evidence that suggests that sociopolitical context has an impact on immigration processes and associated mental health (13,14). To that end, expanding the locale of epidemiological studies on migration and mental health could be of interest, particularly given that the bulk of studies have been carried out in countries with a long history of migration, 4 of which are English speaking (the US, the UK, Canada and Australia). A study taking place in Southern Europe, with its relatively recent history of mass migration, could provide an interesting counterpoint to existing findings.

Until the end of the 20st century, Spain had been a country of emigrants. With its rising prosperity, proximity to Africa, and relatively porous borders, it became an increasingly popular destination for immigrants (15), and saw an increase from less than 1% of the population in the early 90s to its current rate of around 15%. Spain's relatively recent status as a country of immigrants combined with its historical, cultural, and geographical similarities with some of its immigrant groups (e.g. Latin America; North Africa) suggests that it could provide interesting insights into understanding the relationship between migration and mental health.

The variations found in levels of psychopathology in immigrant and native-born populations may be due to factors specific to the immigrant group in question in conjunction with factors specific to the receiving culture, and/or of some combination thereof. Furthermore, commentators note that cross-cultural research is beset by the challenge of avoiding bias (16,17). In this context, bias refers to variation in a measured phenomenon due to group membership rather than variation of the phenomenon in question. Bias is often related to cultural differences in the understanding of the central constructs and in how specific items are understood.

The aim of this paper is to explore the prevalence of psychiatric morbidity in different immigrant groups in Spain relative to the native-born population, and to identify associated sociodemographic factors. It is expected that psychiatric morbidity will be higher in immigrants relative to the native born population, on the one hand, and, on the other, that there will be variation between immigrant groups.

Method

Study Design

The current paper describes the main findings of a multicenter, observational, cross-sectional study carried out in primary care settings. At the time of the study, public healthcare was available to all individuals registered with their local municipality, regardless of immigration status. Many municipalities facilitated access for those immigrants lacking correct documentation. The principal barrier to accessing the system are primarily related to linguistic and cultural differences(18). Immigrants in Spain show very high satisfaction with the healthcare system. In one study, 59% reported being "satisfied" and 26% reported being "very satisfied" with their experiences(19). Taken together, this suggests that the samples collected in primary care were relatively representative of the populations in question. The study was carried out prior to the current economic crisis in two autonomous regions of Spain. Catalonia is a highly economically and commercially developed region, in which more than 15% of the Spanish population resides, the bulk of whom live in Barcelona. The region is bilingual, with a strong support for the language of Catalan. 20 health centers were included, most of them located in the province of Barcelona, where more than 70% of the legal immigrants in Catalonia reside. Aragon has an average level of economic development, and is less urbanized than Catalonia, with some 3% of the total population of the country. The only language spoken is Spanish. 14 health centers from the 3 provinces that compose the region were included in the sample.

Sampling

The interviews were carried out from January 2006 to December 2007. The census of health care cards of the immigrant population in both regions was used to calculate the size of the sample. Using a dichotomous variable, for an error of +/- 3%, using a bilateral contrast and a confidence level of 95%, the sample required in Catalonia was N= 765 and in Aragon was N= 725, so the total sample required of immigrant population was 1490. In both regions, the sample was adapted to the patterns of immigrant primary care use as described by the centers. The Spanish population was selected by adjusting the sample by gender, age and place of residence to the immigrant sample.

Recruitment procedures

In both regions, health centers that represented all strata of native and immigrant population according to the above calculation were selected. At every center, immigrant population that fulfilled inclusion criteria was invited to participate until the required number stratified by ethnic, gender and age groups was met. When a patient did not fulfill the criteria or refused to participate, he/she was substituted by the next immigrant patient on the list. The Spanish group was recruited at the same health center as the immigrants in order to meet the matching criteria.

Interviews were carried out by mental health professionals who underwent an 8 hour training for use of the test battery and recruitment and interview strategies.

Inclusion/exclusion criteria

Participation in the study required that participants be at least 18 years old, and have the minimal level of Spanish language comprehension to understand the interview process. Participants in the immigrant group had to be born outside of Spain and be from one of the specified geographic regions, whereas the Spanish group had to be of Spanish nationality, self-identified as Spanish, and not a member of the Roma ethnic group (who they are considered an ethnic minority in all European countries).

The Spanish group was matched to the immigrant group by gender and age (+/- 3 years), recruiting the patient from the same health center in which the immigrant was selected.

Geographical groups were self-described, not assigned by the interviewer. Geographic regions used were those corresponding to the larger scale immigration groups in Spain (20), namely: 1.- Latin American (people from Spanish and Portuguese-speaking countries of America); 2.- North African,

3.- Sub-Saharan; 4.- Eastern European (people from the Central and Eastern European countries under the Soviet influence during the post- Second world war period); and 5.- Asian.

The interviews were carried out in Spanish. Although it would have been preferable to collect data in the native language of each immigrant group included in the studies, this was not feasible due to linguistic limitations of available instruments (i.e. the instruments used are not available in the all of the native languages of the various immigrant groups) and because the study did not have the resources necessary to correctly translate the instruments. To that end, Spanish was the medium used to ensure uniformity, even if this came at the cost of excluding non-Spanish speaking individuals.

Measures

The following data were collected:

- Socio-demographic and socio-economic data: gender, age, marital status, education, income measured in increments of Spanish minimum salary, housing, ethnic group, country of birth, self-perceived health which was evaluated with the dichotomous question: Have you got any physical disease?

- The diagnosis of psychiatric disorders was determined with the following instruments:

  - The MINI International Neuropsychiatric Interview (MINI) (21) is a short structured psychiatric interview that allows diagnosis of the main psychiatric diagnosis according to DSM-IV and ICD-10 classifications. It is divided into several modules that assess different diagnostic categories. This psychiatric interview has been translated and validated in numerous languages including Spanish (22). The Spanish version of MINI has not been used previously with immigrants, but other versions have been successfully utilized with refugees (23,24).
  - Somatic symptoms section of the Standardized Polyvalent Psychiatric Interview (SPPI) is a psychiatric interview that was developed for the multiaxial assessment of psychiatric morbidity in medical patients. It permits the use of different diagnostic criteria, including DSM-IV and International Classification of Diseases, Tenth Revision (ICD-10). Its adequate psychometric properties have been described in previous studies (25). Somatic section allows the diagnosis of somatoform disorders. This psychiatric interview has been extensively used by our group in studies on somatoform disorders (26).

Missing data management

Participants that declined to provide complete information were included in the study, as excluding them could result in biasing the sample. Only patients who provided sufficient data to calculate the

main variable of the study (psychiatric case) were included. For instance, if a patient was positive for any mental disorder but did not complete all instruments (due to e.g. lack of time) he or she could still be included. Likewise, a patient that answered negatively to all screening questions from the MINI could also be included.

Ethical aspects

Informed consent was obtained before inclusion from each participant in the study after they received a document which explained the aims and characteristics of the study. This research complies with the Helsinki Convention norms and its' subsequent modifications and with the Declaration of Madrid of the World Psychiatric Association. The Study Protocol was approved by the Ethical Review Board of both regional health authorities.

Statistical analyses

Qualitative sociodemographic (marital status:being in a couple versus alone; education: at least secondary school versus none or only primary schoo,; housing home owner/renter versus with no fixed abode; employment: to working, home making or studying vs. not working/not studying; see table 1) and diagnosis variables were dichotomized when it was impossible to carry out analyses due to low number of cases and to avoid disparate groups. Differences in proportions across native born and immigrant groups were analyzed using *odds Ratio and* chi-square tests. Only one quantitative variable (rent) was analyzed using the t-student test. Finally, a multivariate logistic regression was calculated using ethnicity as factor, all variables found to be statistically associated with psychiatric disorder and/or ethnicity as covariates and psychiatric morbidity as dependent variable. Statistical analyses were conducted using SPSS 18.0. A 95% confidence interval was considered statistically significant in all analyses.

Results

Figure 1 summarizes the flowchart of the study. Refusal rate in immigrants was quite low considering the residence status of many of them, and similar to that found in Spanish population.

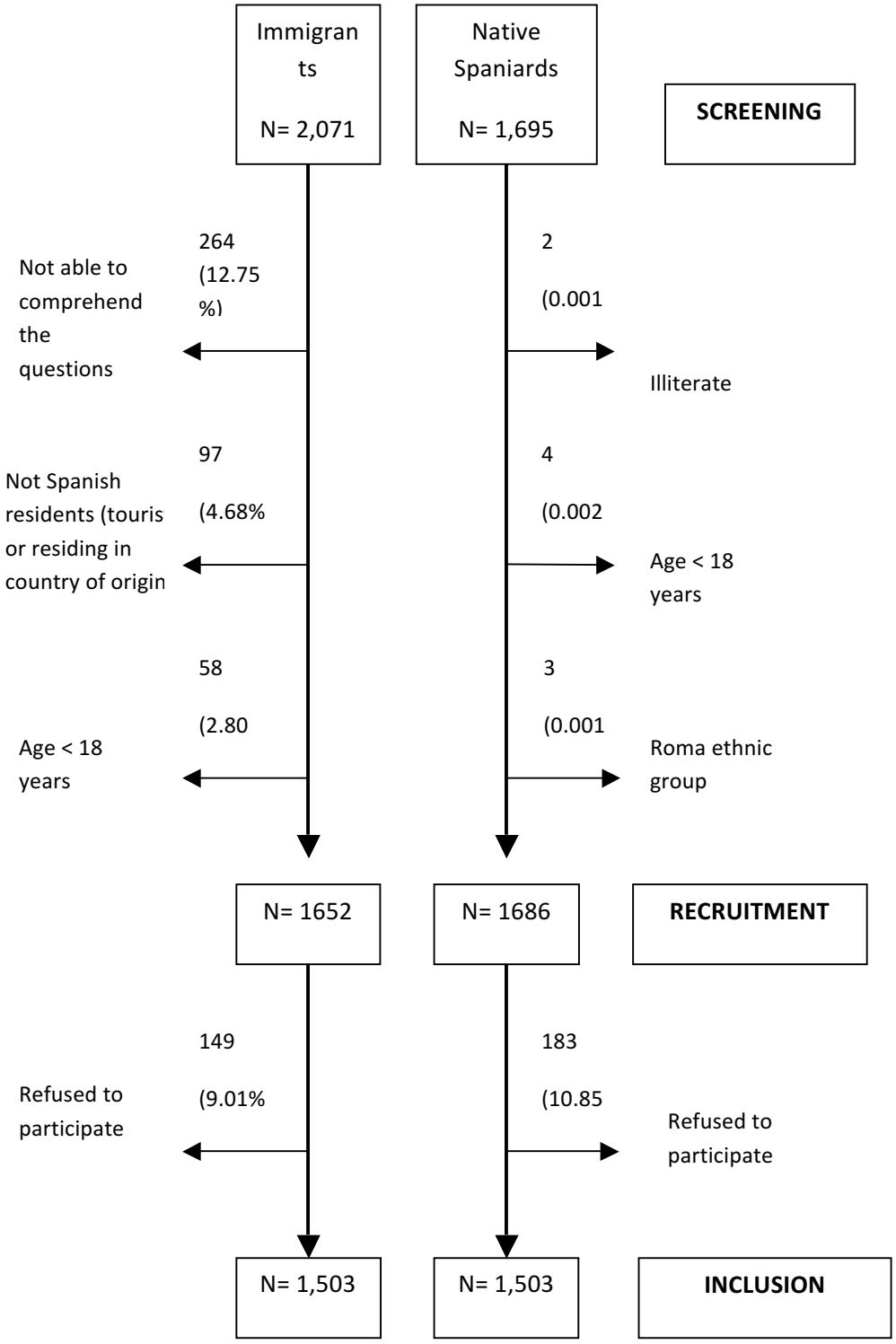

Table 1 summarizes the distribution of the sample by gender and, for immigrants, by geographical group. Socio-demographic characteristics of the sample are summarized in Table 2. The sample is relatively young and mostly female (61.3%). Immigrants reported a more stable marital relationship,

had lower levels of education, were less likely to live in independent housing, had higher levels of unemployment and were less likely to reside in urban areas.

Table 1. *Distribution of the sample by gender and geographical group (N=3,006)*

Geographical group	Male N	% (of group)	Female N	% (of group)	Total N	% (of total)
Native born	581	38.7	922	61.3	1,503	50
Total immigrants	581	38.7	922	61.3	1,503	50
Latin Americans[1]	136	22.1	478	77.9	614	20.4
North African[2]	122	51.7	114	48.3	236	7.8
Sub-Saharan[3]	135	57.7	99	42.3	234	7.8
Eastern European[4]	57	27.5	150	72.5	207	6.9
Asian[5]	132	62.0	81	38.0	213	7.1

[1] Latin Americanss mainly are comprised by Ecuadorians (22.5%), Bolivians (12.7%), Dominicans (13.2%), Peruvians (12.4%) and Colombians (11.4%).
[2] North Africans predominantly consist of Moroccans (78.8%) and Algerians (16.5%).
[3] The Sub-Saharan group predominantly is comprised by Senegal (41.9%) and Equatorial Guinea (10.7%).
[4] Eastern Europeans mainly are comprised by Romanians (84.1%)
[5] Asians are comprised by Pakistanis (44.8.2%), Filipinos (21.2%) and Chinese (17.5%).

Table 2. *Socio-demographic characteristics of the sample*

	Immigrants (N=1,503)		Native born (N=1,503)				
	M	SD	M	SD			
Age	32.5	9.3	32.5	9.4	--	--	--
	N	%	N	%	OR	95% CI	*p*
Gender (% female)	922	61.3	922	61.3	--	--	--
Living in rural area (%)*	34	2.3	62	4.1	.538	.352-.822	<.005
Marital status							
(% with couple)	818	55.1	671	44.9	1.508	1.305-1.742	<.0001
Married/stable relation	*741*	*49.9*	*497*	*33.2*			
Single Widow	*555*	*37.4*	*740*	*49.5*			
Divorced Other	*22*	*1.5*	*8*	*.5*			
	90	*6.1*	*77 174*	*5.1*			
	77	*5.2*		*11.6*			
Education *(%*							
at least secondary)	1025	68.8	1113	74.7	.748	.637-.878	<.0001
No schooling	*60*	*4.0*	*2*	*.1*			
Primary	*404*	*27.1*	*375*	*25.2*			
Secondary University	*688*	*46.2*	*586*	*39.7*			
	337	*22.6*	*527*	*35.4*			
Housing *(%*							
home owner/renter)	915	61.3	1349	91.4	.149	.121-.184	<.0001
Rental Institution	*687*	*46.0*	*402 3*	*27.2*			
Own Shared	*15*	*1.0*	*947*	*.2*			
Guesthouse Homeless	*228*	*15.3*	*121 3*	*64.2*			
	554	*37.1 .4*	*0*	*8.2 .2*			
	6	*.1*		*0*			
	2						
Employment							
(% working/home making/studying)	1083	72.2	1222	82.4	.556	.467-.662	<.0001
*Unemployed***	*416*	*27.8*	*261*	*17.6*			
Employed Studying	*822*	*54.8*	*1090*	*73.5*			
Domestic duties	*25*	*1.7*	*92*	*6.2*			
	236	*15.7*	*40*	*2.7*			
	M	SD	M	SD		t	*p*
Rent***	2.0	.5	2.3	.6		11.120	<.0001

*Less than 10000 inhabitants **Includes retired and disabled due to low number of cases (<50) ***Measured in Spanish minimum wage, only within employed who gave information (n=1854, 796 immigrants, 1058 native born).

Table 3 describes self-perceived physical health and psychiatric morbidity in both groups. There are no differences in psychiatric morbidity between immigrants and Spanish neither according to MINI psychiatric interview (24.1% 95% CI=21.91-26.23 in immigrants vs 26.1% 95%CI= 23.91-28.35 in Spaniards).

The only significant differences between both groups are the following: more current depression in immigrants and more panic disorder, alcohol abuse, other drug abuse and dependence in Spanish. Self-perceived physical health is poorer among native born.

Table 3. *Self-perceived physical health and psychiatric morbidity in immigrants and native born population (global and by diagnostic categories). Unadjusted comparisons.*

	Immigrants		Native born				
	N	%	N	%	OR	95% CI	*p*
Self-perceived physical health (% who perceived	255	17.4	333	22.5	.728	.607-.874	<.001
Current psychiatric morbidity (MINI)	362	24.1	393	26.1	.898	.761-1.059	.200
Current somatoform disorder*	194	13.1	181	12.5	1.061	.854-1.318	.593
Current psychiatric disorder (MINI+SPPI)	445	29.6	464	30.9	.942	.806-1.100	.451
Major depression, current (past 2 weeks)	205	13.6	162	10.8	1.306	1.490-1.627	.017
Major depression, recurrent	86	5.7	99	6.6	.859	.637-1.157	.317
Dysthymia, current (past 2 years)	34	2.3	33	2.2	1.030	.635-1.672	.904
Mania, current	3	.2	3	.2	1.001	.202-4.966	.999
Hypomanic, current	27	1.8	20	1.3	1.357	.758-2.431	.302
Panic disorder, current (past month)	19	1.3	36	2.4	.521	.297-912	.020
Agoraphobia, current	8	.5	11	.7	.723	.290-1.803	.074
Social phobia, current (past month)	30	2.0	24	1.6	1.255	.730-2.157	.410
Obsessive-compulsive disorder, current (past month)	25	1.7	18	1.2	1.394	.757-2.565	.284
Posttraumatic stress disorder, current (past month)	26	1.7	17	1.1	1.540	.832-2.850	.166
Alcohol abuse, current (past 12 months)	39	2.6	76	5.1	.500	.338-.741	<.000
Alcohol dependence current (past 12 months)	39	2.6	50	3.3	.755	.506-1.185	.238
Drug abuse, current (past 12 months)	6	.4	51	3.4	.114	.049-.266	<.000
Drug dependence current (past 12 months)	8	.5	60	4.0	.129	.061-.270	<.000
Psychotic disorder, current	16	1.1	8	.5	2.015	.860-4.723	.100
Mood disorder with psychotic symptoms	10	.7	9	.6	1.116	.452-2.753	.812
Anorexia nervosa, current	1	.1	2	.1	.500	.045-5.520	.564
Bulimia nervosa, current	12	.8	9	.6	1.137	.562-3.182	.510
Generalised anxiety disorder, current	127	8.5	113	7.6	1.137	.873-1.481	.341

* Moderate, intense or very intense somatic symptoms in the Standarized Polivalent Psychiatric Interview (SPPI).

Table 4 shows the prevalence of current psychiatric disorders (MINI+SPPI) by geographic origin. Spaniards (prevalence: 30.9%) Eastern Europeans (31.4%) and North Africans (26.8%) had a similar prevalence of psychopathology. Latin Americans had a significantly higher level (36.8%; OR=1.458, 95% CI=1.210-1.757) whereas Sub-Saharans (24.4%; OR=.726, 95% CI=.533-.998) and Asians (16%; OR=.417, 95% CI=.286-.606) had lower prevalences. Prevalence of specific mental disorders by geographical origin is not included in this study and will be described in an independent paper.

Table 4. *Prevalence of current psychiatric disorders (MINI+SPPI) by geographical origin*

	Prevalence (%)	95%CI (prevalence range)	OR*	95% CI
Native Born (n=1503)	30.9	28.52-33.18	1.061	908-1.239
North African (n=236)	26.8	21.15-32.47	.834	.618-1.125
Eastern European (n=207)	31.4	25.08-37.72	1.061	.782-1.438
Sub-Saharan (n=234)	24.4	18.86-29.86	.726	.533-.998
Latin American (n=614)	36.8	33.00-40.62	1.458	1.210-1.757
Asian (n=81)	16.0	11.04-20.88	.417	.286-.606

*Calculated over the whole sample taking as comparison group the rest of the sample for each geographic origin.

Table 5 describes the multivariate logistic regression results using psychiatric morbidity as dependent variable, sociodemographic characteristics as covariates and ethnicity as a categorical covariate. All covariates used in the study were included as they all were found to be statistically associated with psychiatric disorder and/or ethnicity. The model had a good fit (Hosmer-Lemeshow statistic p=.265) explaining a 7.5% of the total variance for psychiatric disorder (R-Squared Statistics: Cox=.075). The most important predictors in order of the weight of coefficients were self-perceived physical health, the region where the interview was carried out, marital status, education, gender and housing.

Table 5. *Adjusted model* of current psychiatric disorders in immigrant and native Spanish population*

Variable	Wald	OR	95%CI		*p*
			Lower	Upper	
Region (Aragon)	27.412	1.597	1.340	1.902	<.0001
Age	2.682	.92	.982	1.002	.102
Gender (female)	11.264	1.364	1.138	1.635	<.001
Self-perceived Physical health (illness)	70.810	2.394	1.953	2.933	<.0001
Marital status (couple)	26.034	.624	.521	.748	<.0001
Education (at least secondary)	11.749	.719	.596	.868	<.001
Housing (renter or owner)	4.625	.793	.642	.980	.032
Employment (working, homemaking or studying)	.787	.913	.746	1.117	.375
Rural	.010	.977	.619	1.541	.919
Ethnicity	20.220				<.001
North African	8.719	1.887	1.238	2.877	.003
Eastern European	3.133	1.574	.952	2.602	.077
Sub-Saharan	3.672	1.654	.989	2.767	.055
Latin Americans	.953	1.291	.773	2.158	.329
Asian	14.104	2.329	1.498	3.621	<.0001

*Multivariate logistical regression
**Native born is reference group
N=3,006
Goodness of fit: Hosmer-Lemeshow statistic p=.265
R-Squared Statistics: Cox=.075

Discussion

The findings of the study, perhaps more than anything else, demonstrate the complexity of researching the mental health status of immigrants. It was hypothesized that immigrants would have higher levels of psychiatric morbidity than native born Spaniards, which at first glance is not supported by the data. However, this "first glance" belies the complexity of studying psychopathology in immigrant populations. When grouped together as "immigrants" versus "Spaniards", no difference was found, however, analysis by geographic origin told a very different story. Latin American immigrants showed a higher prevalence of psychiatric disorders, whereas Sub-Saharans and Asians have a lower prevalence of mental disorders, and Eastern Europeans and North Africans with roughly the same relative to the entire sample (immigrants and native-born combined). These findings would appear to be contrary to what should be expected given the notion of cultural congruity (11), which holds that cultural similarity correlates negatively with psychopathology. As will be discussed below, however, the study findings raise important questions about how such epidemiological data is best interpreted.

In this study, immigration has an impact on mental health after adjusting for standard mental health sociodemographic confounding variables which were also related to psychopathology, which include gender, housing, self-perceived physical health, being married or living common-law, having higher education and the region where the interview was carried out (higher levels of psychopathology in Aragon). .This is a comparative study of psycopathology between immigrants and native-born Spaniards, and it is, as such, notable that key life issues, both the more "universally applicable" ones such as the sociodemographic variables as well as the more specific factor of immigration have an impact on psychopathology. Elaboration of the specific nature of the relationship between immigration, sociodemographic variables and mental health is beyond the scope of this paper. The only significant differences in the prevalence of psychiatric disorders between both groups are the following: more current depression in immigrants and more panic disorder, alcohol abuse, other non-alcohol drug abuse and dependence in the Spanish group.

The higher levels of depression in immigrants is consistent with the notion that immigrants are subject to higher levels of stress, however, it is unclear why this would not also hold for anxiety disorders. The lower rates of alcohol and drug abuse in the immigrant population are

also consistent with research, which shows that immigrants, as is the case with their counterparts in the country of origin, have lower use related in part to higher associated stigma and lower availability (27,28), which is all the more pertinent given that Spain has the second highest rate of drug use and is in the top five for alcohol use in the world (29). It is also possible, however, that the low rates in immigrants is due to "response bias"; that is, use was underreported in the immigrant population precisely because of the stigma associated with drug and alcohol use.

Notwithstanding possible methodological confounds, these findings challenge any notion of clear patterns found in the literature. It may be that all findings concerning psychopathology in immigrant groups must take social context of both home and host country into consideration. Thus whereas Latin American immigrants in the United States show such good mental health relative to the US born population (30) that commentators talk about a "Latino health paradox" (31), in Spain, Latin American immigrants show the highest level of psychopathology. This may be in part contextual; the health paradox primarily refers to Mexican and Central American immigrants who comprise the bulk of Latin American immigrants to the US, whereas in Spain the bulk of Latin American immigrants come from South America. Further underscoring the complexity are the findings that Puerto Rican immigrants tend to have higher levels of psychopathology(1)(1). What may differentiate the Latin American immigration experience between countries is that there is a large, well-established Latin American population in the US, and immigration from the region goes back generations, whereas in Spain large scale immigration from Latin America is more recent, meaning that communities are only beginning to be consolidated. Given the notion of "cultural congruity"—Spain and most Latin American countries share a language and have many cultural and historical commonalities—mental distress, theoretically, should be lower. It may be that the impact of the so-called Latino cultural protective factors such as "familismo" may not have the same impact in Spain as in the US. Perhaps there is an even implicit expectation that immigration to Spain should be easier, entailing fewer differences, and when this is not the case it has an adverse effect in mental health.

When analyzed by geographic region of origin, the study findings illustrate the dubiousness of the very category of "immigrant" versus "non-immigrant. The "lack of difference" between immigrant and native-born participants is due to the extremes found in the various immigrant groups, which, in and of themselves, raise important questions as to the meaning

of these variable findings. The notion that immigrants will have higher levels of psychopathology relative to the native-born population implicitly assumes homogeneity in the immigrant category. Further, the implicit assumption is that the all immigrant groups are equally prone to being affected by the associated risk factors.

One of the constant confounding issues besetting transcultural research is that of language and cultural bias. Only the Latin American and Spanish groups were interviewed in their native language. The MINI has been used extensively throughout the world, and shows good acceptance and validity across multiple cultures and languages (32–34), precisely the reasons for which it was chosen. At the same time, the MINI has not been validated for use with immigrants from Latin America, Subsaharan Africa, Asia, North Africa, and Eastern Europe, and the interview was conducted in Spanish, a second language for many of the study participants. Indeed, despite every effort to maximize diagnostic validity, this study brings to light somequestions regarding the feasibility of cross-cultural comparative research for both linguistic reasons (did the patient really understand the question?; did the interviewer really understand the patient's response?), as well as cultural reasons- (did the patient understand the meaning of the questions?; is it culturally normative to affirm (or deny) the existence of a particular symptom?; does that symptom even constitute a "symptom" in the culture in question? (35). This latter point, one that has been extensively addressed in the transcultural psychiatry literature (36–38), begs the very question as to what constitutes "psychopathology" across cultures, given that how it is experienced, expressed and explained, and its impact on treatment and outcome are all influenced by culture. Thus "cultural differences" in the above sense can impact both how an individual understands and expresses mental distress as well as how mental distress is then diagnosed.

Given these considerations, it is unclear if the different levels of psychopathology are a function of objective differences in levels of psychopathology in the different immigrant groups, if they are artifacts of measurement error, a combination of the two, or indeed due to some other factors. Further, it is impossible to ascertain to what extent, if at all, each group is similarly or differentially impacted by these considerations. That is to say, it could be the case that the findings for one group are due to more or less "really existing" levels of psychopathology" whereas for other groups it is due to measurement bias, and another group due to linguistic misunderstandings. Contrasting the study findings with other research does

not divulge any clear patterns, lending further credence of the measurement bias argument, which may indeed be present in almost any multicultural study.

Of course it may be the case that the findings are accurate, and that for a variety reasons the different immigrant groups enjoy considerably different rates of psychopathology in Spain. Immigration in Spain is by no means homogeneous. There is considerable variability in terms of patterns of immigration, how people get to Spain, community structure and support; cultural congruity; and so forth, all of which could exert direct or indirect effects on the outcome measures.

Limitations: The study is beset by the following limitations. Neither pre-migration psychopathology nor family history of psychopathology was registered, thus rendering it impossible to determine if migration is at all relevant to the study question. In addition, the study was principally carried out in Spanish, meaning that linguistic considerations could have impacted comprehension of items on the one hand, and study inclusion on the other. Because the study was carried out in primary care—which certainly had its advantages and may provide access to patients that would otherwise not be accessible—the sample is clearly not representative of the general immigrant population. Finally, the samples are not equivalent across the two study sites.

Conclusions. Two key findings emerged from this study. One is that there is considerable variability in levels of psychopathology across different immigration groups, and the other is that the receiving country may have an impact on the mental health of immigrants, a conclusion inferred based on the variability in prevalence of psychopathology in immigrant groups in this study relative to studies carried out in other countries. In terms of prevalence, the key issue may not simply be one of being an immigrant, but rather an immigrant from a specific country residing in a specific country; it is not the same to emigrate from Mexico to the US as from Ecuador to Spain It was also concluded that the "immigrant" group category is so heterogeneous that unless there is a compelling reason to do so, as much specificity about geo-cultural group as is feasible should be employed future studies. In the same way, "immigration" is not a generic phenomenon, but may be rather would appear to be highly influenced by social context;, and to that end, future research should incorporate some means

of assessing factors related to both sending and receiving countries. Finally, this study demonstrates the need to include mechanisms that can minimize the interference of bias.

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