

Depressive symptoms among migrants and non-migrants in Europe: documenting and explaining inequalities in times of socio-economic instability

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Background: With the current study, we aim to explore the extent that migrants report higher rates of depressive symptoms than non-migrant populations in light of gender, childhood experiences, socioeconomic factors and social support across European countries that have been differentially influenced by the economic crisis. **Methods:** Using data from the seventh round of the European Social Survey and the Greek MIGHEAL survey, we compare the prevalence of depressive symptoms among migrants and non-migrants aged 25–65 years old across 21 countries. **Results:** Our findings show that migrants report significantly higher levels of depressive symptoms in seven of the examined countries, while in Greece and in the UK, they report significantly lower levels compared with non-migrant populations. The current climate of socioeconomic instability does not seem to necessarily associate with increased rates of depressive symptoms across countries neither it affects migrants and non-migrants in a similar way. Financial strain, childhood experiences of economic hardship and domestic conflict, female gender, as well as experiences of perceived discrimination appear to associate with increased levels of depressive symptoms among both migrant and non-migrant populations, while social trust and living with children have a protective impact. Still, much variation exists in the range of these associations between migrants and non-migrants and across countries. **Conclusion:** These findings suggest that the impact of migration status on depressive symptoms is subject to additional determinants of mental health as well as to contextual factors.

Introduction

Migration has emerged as a social determinant of mental health and specifically of depressive disorders as it is associated with increased stressful experiences of change, loss, perceived discrimination and social marginalization.^{1,2} Case studies have shown that migrants report significantly more depressive symptoms than non-migrants mainly due to their lower socioeconomic status.^{3,4} However, comparative research on the impact of migration on depressive symptoms in Europe, although confirming the increased prevalence among migrants, has shown that after controlling for socioeconomic factors, gender, marital status and ethnic discrimination have an additional effect.⁵ Outcomes relative to the effect of other risk and protective factors remain inconclusive, while there is evidence that unemployment, novelty, language difficulties, cultural and social marginalization, family estrangement, pressure to send money back home, and lack of statutory documentation are particular risk factors affecting migrants' mental well-being.^{1,6}

In Europe, there are more than 56 million of migrants, many of whom have been either born or living in the region for more than two decades.¹ Previous research has documented that even though migrants may often be healthier than native populations when they first arrive in the hosting country due to the 'healthy migrant' effect, their health deteriorates rapidly as they settle. So, their original health advantage is either lost or even reversed.^{7,8} This is particularly alarming regarding the impact of migration and integration

experience in Europe. Hence, the first aim of this study is to test the hypothesis that migrants report greater rates of depressive symptoms than non-migrants. The second aim is to explore whether and to what extent differences in the prevalence of depressive symptoms between migrants and non-migrants can be explained by risk and protective factors that apply to both groups.

Furthermore, in order to account for contextual conditions, we adopt a comparative approach across twenty one countries. Given that Europe is in a moment of generalized socioeconomic instability with differential impact across countries, we expect that in countries where the impact of economic crisis has been harsher (i.e. Southern countries and Ireland), the prevalence of depressive symptoms will be higher among their residents.⁸ We expect that higher prevalences will be more exacerbated among migrants as they deal with the crisis starting from an already disadvantaged position compared with natives⁹ while they get simultaneously targeted by the xenophobic discourse that has strengthened significantly in light of the overlapping increased arrivals of migrants and refugees in Europe during the last years.¹⁰ In that light, we expect the highest prevalence of depressive symptoms in Greece as an extreme case where the strictest austerity measures have been implemented with a devastating impact on (mental) health^{11–13} simultaneously with an intensified anti-migrant climate and rhetoric.¹⁴ Hence, we examine a pooled sample from 20 European countries using population representative data from the 7th round of the European Social Survey (ESS) and a separate Greek sample using data from the

MIGHEAL survey that includes comparable groups of migrants and non-migrants. This is one of the contributions we aim to make as this is the first study where comparable data on depressive symptoms are available for Greece, after the country accepted the bailout deal of 2010 and entered the phase of neoliberal structural adjustments.

Regarding the explanation of depressive symptoms prevalence, we examine the impact of a broad set of factors and their interrelation with migrant status that has been largely ignored in previous research. Namely, we look upon the impact of three dimensions of socioeconomic position, i.e. educational level, labour market status and subjective financial strain considering that their association to mental health does not necessarily follow the same pattern across countries and groups¹⁵ especially in times of crisis. Moreover, we test the impact of experiences of economic hardship during childhood. Although previous studies have revealed a long-term effect of childhood socioeconomic status on depression,¹⁶ this has been rarely considered in comparative research and especially for migrant populations. In an attempt to integrate further a life-course approach in our analysis, we examine also the long-term effect of experiences of domestic conflict during childhood.

Additionally, we consider the impact of experiences of perceived discrimination as an important risk factor for mental health.¹⁷ Our contribution is that we consider discrimination experiences on the basis of multiple dimensions of social positioning beyond migration status such as gender, sexual orientation or religion. In this way, we account for the fact that such experiences may also concern non-migrants and for the fact that there are individuals who experience a greater burden of discrimination because they simultaneously belong to more than one socially marginalized groups (e.g. migrant women).¹⁸

Gender and providing unpaid care are also included in our analysis, in order to explore potential differences in the gender gap among migrants and non-migrants and the extent that providing care functions as a distinct stressor.¹⁹ Finally, living with children in the house and social trust are also added in the analysis as proxies of social support. In every case, we control for age and its differential effect across the life-span, while for migrants we also control for generation status (i.e. first, second).

Methods

Data and sample

We used data from the seventh round of the ESS conducted in 2014²⁰ that consisted of 22 775 adults aged 25–65 years old living across 20 countries as shown in table 1. Additionally, we used data from the MIGHEAL survey that consisted of 939 individuals of the same age residing in Greece.²¹ The MIGHEAL survey was designed according to the ESS guidelines for the measurement of health inequalities among migrants in Greece in 2016 with a raw sample of 1332 respondents and non-response rates lower than 3%. A differentiation to notice between the two sources of data is that while in the MIGHEAL survey migrants have been oversampled so as to facilitate comparisons between migrants and non-migrants, the same does not apply for the ESS that has not been set up to be representative for migrant groups. In both cases, data were collected with interviews conducted in the official language spoken in the country (i.e. the one spoken by at least 5% of the overall population) which means that migrant respondents are probably rather settled since they were both able and willing to participate in a survey.

Depressive symptoms

Depressive symptoms were measured with an eight item version of the Centre for Epidemiological Studies–Depression Scale (CES-D).²² Respondents had to answer how often in the past week they felt depressed; that everything was an effort; had restless sleep; were

happy; felt lonely; enjoyed life; felt sad; could not get going. Answers ranged in a four-point scale from ‘none to almost none of the time’ to ‘all or almost all of the time’. After reversing the items ‘felt happy’ and ‘enjoyed life’, we calculated the sum score of all the items, so that higher score reflects higher levels of depressive symptoms. To be assigned a sum score, respondents had to answer to all the items, while those respondents who had given the same answers across all the items despite there being two reversed items were excluded from the analysis.²³

Risk and protective factors

Migrant status was assigned on the basis of the respondents’ and their parents’ country of birth. Respondents who were either foreign born or had at least one foreign born parent were considered as migrants while respondents who both themselves and their parents were born in the country of residence were considered as having non-migrant origin.

Highest level of education achieved was measured converting the ISCED categories in three dummy variables, namely ‘lower secondary or less’; ‘upper secondary or advanced vocational’; ‘tertiary’. To measure labour market status we used the respondents’ main activity in the last seven days. Dummy variables were constructed for the categories ‘doing paid work’, ‘being unemployed and actively looking for job’, and ‘other status’. Subjective financial strain was measured with the item ‘how [do] you feel about your household’s income nowadays?’ converted in a dichotomous variable that took 1 if the respondents answered ‘finding it difficult or very difficult to cope on present income’. For childhood conditions, two dichotomous variables measured the frequency of experiencing economic hardship and domestic conflict.

Gender was measured as a dummy variable taking 1 for females and providing unpaid care with the item ‘Do you spend any time looking after or giving help to family members, friends, neighbours or others?’ operationalized as a dichotomous variable that took 1, if the answer was positive. Age was measured as a continuous variable and its square was used to test for an age curvilinear effect.

Perceived group discrimination was measured with the items ‘Would you describe yourself as being a member of a group that is discriminated against in this country?’ and ‘On what grounds is your group discriminated against?’ Answers were colour or race; nationality; religion; language; ethnic group; age; gender; sexuality; disability and other. A sum score variable was constructed so that a higher score reflected perceived group discrimination on more grounds capturing this way the experience of individuals who simultaneously belong to more than one socially disadvantaged groups.

We measured whether respondents had children living in the household with a dichotomous variable and social trust with the sum score in the items ‘Would you say that most people can be trusted, or that you can’t be too careful in dealing with people?’; ‘Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?’; and ‘Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?’.

Analyses

ESS and MIGHEAL data were analyzed separately using SPSS-24 software package and weights were applied according to recommendations relevant with each study.^{21,24} In order to examine whether the mean depressive symptoms of migrant and non-migrant populations were significantly different, we conducted *t*-tests for independent samples with equal variance not assumed across all countries (table 1).

Next, for ESS data, we implemented a multilevel analysis with the pooled sample in order to control for country level variance. An intercept only model showed that there is a significant country variance for non-migrants only (0.65, $P < 0.05$) with an intra-class

Table 1 Mean levels of depressive symptoms among migrants and non-migrants across countries

Country	Migrants			Non-migrants			Mean difference	CI (95%)	
	N	Mean	CI (95%)	N	Mean	CI (95%)			
Greece	469	7.38	6.96, 7.80	470	8.12	7.70, 8.55	-0.743*	-1.627	-0.62
Austria	114	5.3	4.57, 6.03	376	4.6	4.23, 4.96	0.705	-0.29	1.08
Belgium	162	5.54	4.87, 6.21	429	4.85	4.49, 5.20	0.692	-0.33	0.87
Switzerland	206	4.81	4.28, 5.34	239	3.74	3.32, 4.16	1.071***	0.44	1.51
Czech Rep.	55	6.86	5.67, 8.05	502	6.1	5.73, 6.47	0.763	0.04	2.18
Germany	1023	5.77	5.53, 6.01	3369	5.39	5.27, 5.51	0.382**	-0.03	0.40
Denmark	39	5.5	4.39, 6.62	244	4.63	4.16, 5.09	0.876	0.05	2.10
Estonia	31	6.18	4.74, 7.62	39	5.54	4.29, 6.79	0.640	-0.76	2.40
Spain	329	5.7	5.21, 6.18	2302	5.69	5.52, 5.87	0.008	-0.74	0.15
Finland	22	4.8	3.00, 6.59	263	4.2	3.83, 4.56	0.602	-0.82	2.08
France	1015	5.52	5.28, 5.76	2522	4.84	4.69, 4.99	0.679***	0.27	0.74
UK	989	4.83	4.59, 5.07	2445	5.36	5.22, 5.55	-0.554***	-0.32	0.18
Hungary	19	7.34	5.17, 9.51	498	6.36	6.00, 6.73	0.975	-0.85	2.40
Ireland	47	4.17	3.10, 5.23	193	4.09	3.57, 4.62	0.071	-0.75	1.26
Lithuania	16	6.61	4.81, 8.42	124	6.13	5.49, 6.77	0.486	-0.85	2.36
Netherlands	176	5.6	4.97, 6.22	751	3.94	3.71, 4.18	1.651***	0.92	1.95
Norway	52	5.17	4.00, 6.33	212	3.83	3.42, 4.23	1.339**	0.10	2.14
Poland	137	6.7	5.73, 7.66	2187	4.72	4.54, 4.91	1.973***	0.79	2.40
Portugal	54	6.68	5.48, 7.87	374	6.73	6.26, 7.19	-0.052	-0.73	1.43
Sweden	113	5.35	4.58, 6.12	364	4.52	4.14, 4.90	0.829*	0.19	1.52
Slovenia	22	4.81	3.37, 6.26	92	4.49	3.76, 5.21	0.329	-1.39	1.42

*: $P \leq 0.05$.**: $P \leq 0.005$.***: $P \leq 0.001$.

correlation of 0.038, meaning that 3.8% of the variance in depressive symptoms is explained by differences between the countries. Then, to test the association between the examined risk and protective factors and depressive symptoms, multilevel regression models were fitted separately for migrants and non-migrants (table 2). Additionally, we run the same multiple regression models for each country separately as well as for the MIGHEAL sample (tables 3 and 4).

Results

The prevalence of depressive symptoms among non-migrants ranges from 3.74 in Switzerland to 8.12 in Greece, while for migrants from 4.17 in Ireland to 7.38 in Greece. We observe high levels of depressive symptoms among both migrant and non-migrant groups in Eastern and Mediterranean European countries, with the exception of Slovenia. Still, the differences in the means of depressive symptoms between the two groups across countries are significant only in Greece, Switzerland, Germany, France, UK, the Netherlands, Norway, Poland, and Sweden (table 1). The largest differences between the two groups appear in Poland, followed by the Netherlands, Norway, and Switzerland.

The results of the regression models in table 2 reveal that second generation migrants in the ESS sample are more prone to depressive symptoms than first generation migrants. Furthermore, there are variations both between groups and between samples. Specifically, almost all the risk factors have a stronger effect on the Greek sample both among migrants and non-migrants. Exceptions include labour status and financial strain. Women appear more vulnerable to depressive symptoms than men in both samples with Greek non-migrant women bearing the heaviest burden. Also, it seems that educational inequalities exist both within and between groups. However, they appear exacerbated among migrants in the ESS sample, while the opposite applies in the MIGHEAL sample. Further, subjective financial strain appears as a significant strong predictor of depressive symptoms for everyone. However, the impact is stronger in the ESS sample overall and among non-migrant respondents within samples.

Experiences of economic hardship in childhood are related to depressive symptoms in adult life for everyone but the impact is harsher for migrants living in Greece. The picture is different for experiences of domestic conflict in childhood that seems to affect similarly migrants and non-migrants in the pooled European sample but has almost a four times stronger impact for non-migrants and no impact for migrants in Greece. Additionally, perceived discrimination associates with depressive symptoms for everyone but has a much stronger impact among non-migrants in Greece. Also, offering unpaid care emerges as a significant risk factor in the ESS sample only and more so for migrants. Finally, for the ESS sample, it seems that older age associates with higher rates of depressive symptoms among non-migrants with a slight negative curvilinear effect. The pattern is similar though more pronounced among non-migrants in Greece. In terms of protective factors, for the European pooled sample it seems that for non-migrants doing a paid work or looking for one have a protective impact compared with being outside the labour market. However, immigrants seem to benefit only by being active in the market. Still, labour status appears not associated with depressive symptoms in the Greek sample. Living with children at home has a stronger effect in the MIGHEAL sample and especially for non-migrants while social trust seems to protect everyone but non-migrant Greeks to a similar extent.

In terms of variations across countries, although differences in sample sizes do not render our results directly comparable, they reinforce the idea that the impact of migration status on depressive symptoms as well as its interrelation with risk and protective factors are subject to contextual circumstances.

Discussion

The aim of the current study was to examine whether the prevalence of depressive symptoms is higher among migrants than non-migrants and to examine the interrelation of migration status with a wide set of risk and protective factors including early life experiences of economic hardship and domestic conflict. We expected that prevalence of depressive symptoms would be higher in countries that have been disproportionately affected by the economic crisis and especially in Greece. Thus, our analysis was based on pooled data

Table 2 Coefficients for depressive symptoms among non-migrants and migrants across samples

	ESS data		MIGHEAL data	
	Non-migrant B (SE)	Migrant B (SE)	Non-migrant B (SE)	Migrant B (SE)
(Constant)	2.85 (0.53)***	5.57 (1.03)***	-3.23 (3.15)	11.18 (3.63)***
Age	0.15 (0.00)***	0.00 (0.05)	0.42 (0.15)**	-0.31 (0.17)
Age Square	-0.00 (0.00)***	0.00 (0.00)	-0.00 (0.00)*	0.01 (0.00)*
Gender (female=1)	0.70 (0.06)***	0.63 (0.12)***	1.34 (0.40)***	1.16 (0.45)*
Education (ref=tertiary)				
Lower secondary or less	0.36 (0.09)***	0.56 (0.18)***	2.13 (0.62)***	1.33 (0.60)*
Upper secondary or advanced vocational	0.09 (0.08)	0.32 (0.15)*	0.21 (0.43)	0.48 (0.58)
Labour market status (ref=other)				
Doing paid work	-0.93 (0.08)***	-0.72 (0.15)***	-0.64 (0.54)	-0.61 (0.59)
Being unemployed and looking for job	-0.57 (0.14)***	-0.30 (0.24)	-0.49 (0.73)	0.61 (0.74)
Very difficult or difficult on present income=1	2.56 (0.08)***	1.76 (0.15)***	1.78 (0.42)***	1.21 (0.49)*
Providing unpaid care=1	0.34 (0.06)***	0.40 (0.13)***	0.03 (0.51)	0.81 (0.67)
Often/always economic hardship while growing up=1	0.55 (0.09)***	0.44 (0.16)**	1.03 (0.52)*	1.61 (0.43)***
Often/always conflict while growing up=1	1.26 (0.10)***	1.29 (0.17)***	4.23 (0.81)***	1.01 (0.99)
Children living at home=1	-0.31 (0.07)***	-0.18 (0.13)	-1.18 (0.41)**	-1.06 (0.43)*
Trust	-0.26 (0.02)***	-0.27 (0.04)***	-0.08 (0.11)	-0.26 (0.11)*
Discrimination	0.67 (0.08)***	0.54 (0.08)***	2.10 (0.73)**	0.74 (0.27)*
Second generation	N/A	0.46 (0.12)***	N/A	2.29 (1.47)
Valid N (listwise)	17491	4614	465	465

*: $P \leq 0.05$.***: $P \leq 0.005$.***: $P \leq 0.001$.

across 20 European countries from the seventh round of the ESS and on Greek data from the MIGHEAL survey.

Regarding our hypothesis that migrants would report higher depressive symptoms than non-migrants, our findings show that it is supported in less than half of the examined countries. Namely, in Switzerland, Germany, Denmark, France, the Netherlands, Norway, Poland, and Sweden. In the rest of the countries, no significant differences emerged, except for Greece and the UK where non-migrant respondents report significantly higher mean levels of depressive symptoms than migrants. Moreover, it appears that second generation migrants are more vulnerable to depressive symptoms than the first generation. These findings are partially consistent with the existing literature that suggests that migration is a risk factor for depressive symptoms even after migrants have settled in the destination country.^{1-4,6,25} However, the observed variation implies that the impact of migration status on depressive symptoms is subject to contextual factors. Future research should insist on multi-level models and examine which particular contextual factors associate with depressive state among migrants as it has been shown that integration policies as well as unemployment rates affect migrants experience directly but also indirectly by reinforcing or reducing anti-migrant attitudes among native majorities.^{26,27}

Our hypothesis that depressive symptoms would be more prevalent in countries more severely affected by the crisis and especially in Greece is partially confirmed. The differences observed between the pooled European sample and the Greek sample seem to be explained by the exacerbated gender and educational inequalities, experiences of economic hardship and conflict during childhood, perceived discrimination as well as by the lack of the protective impact of doing a paid work among Greek residents. These findings suggest that the prolonged economic instability with labour market deregulation and high levels of unemployment have had a severe impact on the mental well-being of everyone.²⁸ Furthermore, it seems that the socio-political turmoil and increased xenophobia present in Greece for almost seven years now²⁹ has also a universal damaging impact. However, the highest rates of depressive symptoms are observed among non-migrants, which may imply that beyond the everyday challenges, emotions

of loss or fear of loss of one's own life and perceived vulnerability may have an additional impact on depressive symptoms.³⁰ In Portugal, we observe an increased prevalence as well but there is no significant difference between migrants and non-migrants. The image changes with Spain, where medium prevalence appears both for migrants and non-migrants, ranking the country in similar positions with Denmark, the Netherlands or Germany. Finally, the image is reversed in Ireland where we observe the lowest levels of depressive symptoms for migrants across countries and similar levels for natives. These findings add new empirical evidence on the impact of economic crisis on depression in Europe³¹ and support the idea that it is not the crisis that affects people's health but the way the states respond to it.³² Furthermore, they suggest that migrants and non-migrants are not necessarily affected by the same socio-economic circumstances similarly.

In terms of risk and protective factors, our findings suggest that there is great variability both between migrant and non-migrant groups and across countries. Still, it is obvious that the impact of migration status is not reduced to the impact of socio-economic marginalization, or to that of experiences of perceived discrimination. Rather it is concomitant and mutually constituted with them as well as with early life experiences,³³ and gender.³⁴ Furthermore, the fact that perceived discrimination involves additional categories beyond migration and predicts depressive symptoms among migrants and non-migrants has two important implications. First that beyond ethnic discrimination, additional oppressive hierarchies such as racism, heterosexism or ableism should be studied as distinct depression risk factors.³⁵ Second that experiences of discrimination do not have an additive but rather an intersectional impact. These implications call for future research with an intersectional approach that will account for the interplay between migration status and other individual dimensions of social positioning as well as with institutional factors beyond the economic field.¹⁷

Our findings should be interpreted in light of a series of limitations. Most of them are related with the cross-sectional nature of our data that does not allow us to form conclusions on causality³⁶ and with that the ESS sample is not adequately representative for migrant groups. Due to the nature of our data and the small migrant groups across ESS countries, we focussed on a particular group of migrants

Table 3 Coefficients for depressive symptoms among migrants across countries

	Greece B (SE)	Austria B (SE)	Belgium B (SE)	Switzerland B (SE)	Germany B (SE)	Spain B (SE)	France B (SE)	UK B (SE)	Netherlands B (SE)	Poland B (SE)	Sweden B (SE)
(Constant)	11.18 (3.63)***	6.69 (6.33)	7.13 (5.88)	8.00 (4.62)	6.24 (1.94)**	7.12 (4.41)	5.85 (2.19)*	1.41 (1.97)	0.57 (4.55)	59.69 (18.99)***	5.81 (7.65)
Age	-0.31 (0.17)	-0.01 (0.31)	-0.08 (0.27)	-0.03 (0.22)	-0.09 (0.10)	-0.05 (0.20)	-0.04 (0.11)	0.15 (0.10)	0.32 (0.22)	-2.53 (0.78)***	0.05 (0.37)
Age square	0.01 (0.00)*	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.03 (0.01)***	0.00 (0.00)
Gender (female=1)	1.16 (0.45)*	0.41 (0.79)	1.61 (0.67)*	-0.28 (0.55)	1.03 (0.23)***	0.94 (0.50)	1.16 (0.24)***	-0.42 (0.24)	-0.54 (0.56)	2.79 (1.10)*	1.19 (0.81)
Education (ref=tertiary)											
Lower secondary or less	1.33 (0.60)*	0.61 (1.20)	0.56 (1.00)	1.02 (0.84)	0.99 (0.37)*	2.14 (0.67)**	1.06 (0.40)*	-0.11 (0.31)	0.67 (0.80)	-0.38 (1.36)	-1.15 (1.48)
Upper secondary or advanced vocational	0.48 (0.58)	0.50 (0.89)	0.33 (0.90)	0.22 (0.65)	0.62 (0.29)*	1.52 (0.66)*	0.44 (0.33)	0.32 (0.29)	-0.47 (0.64)	-2.60 (1.34)	0.40 (0.91)
Labour market status (ref=other)											
Doing paid work	-0.61 (0.59)	-2.04 (1.10)	-1.17 (0.84)	-1.30 (0.72)	-0.04 (0.30)	-0.52 (0.66)	-0.31 (0.30)	-1.22 (0.29)***	-1.98 (0.64)**	0.94 (1.23)	-1.63 (1.28)
Being unemployed and looking for job	0.61 (0.74)	-1.54 (1.50)	0.38 (1.31)	0.47 (1.61)	0.69 (0.46)	0.15 (0.82)	-0.53 (0.47)	-1.52 (0.61)*	-2.67 (1.00)**	-0.28 (3.41)	-1.50 (1.88)
Very difficult or difficult on present income=1	1.21 (0.49)*	1.55 (0.90)	2.04 (0.73)*	1.66 (0.82)	2.63 (0.31)***	1.61 (0.54)**	0.58 (0.28)*	1.72 (0.31)***	2.94 (0.72)***	3.25 (1.27)*	1.65 (1.37)
Providing unpaid care=1	0.81 (0.67)	0.98 (0.91)	1.50 (0.68)*	-0.59 (0.54)	0.53 (0.24)*	1.39 (0.55)*	-0.54 (0.25)*	1.30 (0.27)***	0.31 (0.56)	-0.41 (0.97)	0.04 (0.83)
Often/always economic hardship while growing up=1	1.61 (0.43)***	1.02 (1.03)	0.57 (0.85)	0.67 (0.81)	0.54 (0.30)	0.09 (0.60)	-0.14 (0.30)	1.05 (0.36)**	1.00 (0.80)	0.87 (1.51)	0.66 (1.16)
Often/always conflict while growing up=1	1.01 (0.99)	0.44 (1.09)	0.83 (0.99)	0.71 (0.82)	1.55 (0.31)***	0.12 (1.21)	0.59 (0.36)	1.28 (0.32)***	1.82 (0.71)*	1.98 (1.58)	0.74 (1.10)
Children living at home=1	-1.06 (0.43)*	-0.65 (0.81)	0.47 (0.76)	-0.22 (0.56)	-0.13 (0.26)	-0.86 (0.50)	-0.55 (0.30)	-0.24 (0.25)	0.03 (0.60)	2.85 (1.12)*	1.19 (0.88)
Trust	-0.26 (0.11)*	-0.30 (0.22)	-0.29 (0.22)	-0.38 (0.17)*	-0.26 (0.07)***	-0.49 (0.14)***	-0.22 (0.08)**	-0.06 (0.07)	-0.39 (0.19)*	0.10 (0.29)	-0.42 (0.23)
Discrimination	0.74 (0.27)*	0.12 (0.50)	-0.52 (0.50)	0.46 (0.70)	0.09 (0.20)	0.14 (0.51)	1.31 (0.17)***	0.41 (0.14)**	0.61 (0.32)	-4.11 (3.10)	0.49 (0.48)
Second generation	2.29 (1.47)	0.75 (0.34)	0.07 (0.70)	0.13 (0.58)	0.73 (0.24)**	0.55 (0.73)	0.20 (0.24)	0.49 (0.25)*	0.37 (0.54)	-1.28 (1.99)	0.73 (0.84)
Valid N (listwise)	465	107	158	200	1015	325	1010	971	161	128	111

*: $P \leq 0.05$.**: $P \leq 0.005$.***: $P \leq 0.001$.

Table 4 Coefficients for depressive symptoms among non-migrants across countries

	Greece B (SE)	Austria B (SE)	Belgium B (SE)	Switzerland B (SE)	Germany B (SE)	Spain B (SE)	France B (SE)	UK B (SE)	Netherlands B (SE)	Poland B (SE)	Sweden B (SE)
(Constant)	-3.23 (3.15)	-2.60 (3.13)	4.08 (3.11)	-1.12 (3.76)	1.57 (1.00)	0.85 (1.48)	1.28 (1.22)	4.74 (1.30)***	2.26 (2.11)	6.71 (1.48)***	7.27 (3.23)*
Age	0.42 (0.15)***	0.42 (0.15)*	0.14 (0.15)	0.31 (0.18)	0.20 (0.05)***	0.27 (0.07)***	0.20 (0.06)***	0.14 (0.06)*	0.22 (0.10)*	-0.16 (0.07)*	0.03 (0.15)
Age square	-0.00 (0.00)*	-0.01 (0.00)*	-0.00 (0.00)	-0.00 (0.00)*	-0.00 (0.00)***	-0.00 (0.00)***	-0.00 (0.00)***	-0.00 (0.00)*	-0.00 (0.00)*	0.00 (0.00)***	-0.00 (0.00)
Gender (female=1)	1.34 (0.40)***	-0.21 (0.37)	0.77 (0.34)*	0.03 (0.43)	0.42 (0.12)***	1.38 (0.17)***	0.69 (0.14)***	0.47 (0.16)***	0.59 (0.23)*	0.63 (0.19)***	0.50 (0.38)
Education (ref=tertiary)											
Lower secondary or less	2.13 (0.62)***	0.29 (0.64)	-0.12 (0.52)	0.10 (0.81)	0.31 (0.25)	0.36 (0.21)	0.75 (0.23)***	0.15 (0.22)	0.20 (0.35)	0.26 (0.27)	-0.47 (0.74)
Upper secondary or advanced vocational	0.21 (0.43)	-0.38 (0.45)	-0.25 (0.41)	-0.04 (0.53)	0.41 (0.15)*	-0.15 (0.22)	0.14 (0.18)	0.02 (0.19)	0.04 (0.28)	-0.09 (0.24)	-0.62 (0.43)
Labour market status (ref=other)											
Doing paid work	-0.64 (0.54)	-0.53 (0.53)	-1.44 (0.49)**	-0.92 (0.59)	-0.91 (0.16)***	-1.06 (0.23)***	-0.67 (0.20)***	-1.39 (0.21)***	-1.14 (0.31)***	-0.37 (0.25)	-0.90 (0.56)
Unemployed and looking for job	-0.49 (0.73)	-0.97 (1.10)	-0.82 (1.11)	0.01 (1.56)	-1.48 (0.33)***	0.07 (0.31)	-0.09 (0.31)	2.14 (0.42)***	-1.09 (0.61)	0.10 (0.44)	0.05 (1.09)
Very difficult or difficult on present income=1	1.78 (0.42)***	1.55 (0.64)*	2.56 (0.46)***	0.77 (0.79)	2.83 (0.20)***	2.32 (0.21)***	1.92 (0.19)***	2.93 (0.21)***	1.41 (0.39)***	3.17 (0.23)***	2.77 (0.83)***
Providing unpaid care=1	0.03 (0.51)	-0.01 (0.45)	-0.11 (0.35)	-0.60 (0.44)	0.54 (0.12)***	0.59 (0.18)***	-0.10 (0.14)	0.35 (0.16)*	0.33 (0.24)	0.20 (0.19)	0.36 (0.38)
Often/always economic hardship while growing up=1	1.03 (0.52)*	1.12 (0.71)	0.63 (0.63)	0.28 (0.77)	0.02 (0.20)	0.58 (0.28)*	0.58 (0.21)*	0.68 (0.20)***	0.15 (0.43)	0.54 (0.27)*	1.48 (0.67)*
Often/always conflict while growing up=1	4.23 (0.81)***	1.72 (0.64)*	0.84 (0.49)	1.10 (0.65)	1.43 (0.17)***	1.99 (0.37)***	1.14 (0.20)***	1.16 (0.23)***	0.77 (0.40)*	0.99 (0.37)*	1.04 (0.57)
Children living at home=1	-1.18 (0.41)**	-0.44 (0.41)	-0.13 (0.40)	-0.33 (0.47)	-0.22 (0.13)	-0.64 (0.18)*	-0.59 (0.16)***	-0.58 (0.16)***	-0.63 (0.28)*	0.28 (0.20)	-0.30 (0.44)
Trust	-0.08 (0.11)	-0.14 (0.10)	-0.25 (0.11)*	-0.12 (0.14)	-0.19 (0.04)***	-0.33 (0.05)***	-0.18 (0.05)***	-0.31 (0.05)***	-0.34 (0.10)***	-0.27 (0.05)***	-0.37 (0.14)
Discrimination	2.10 (0.73)**	1.42 (0.93)	1.15 (0.76)	3.65 (0.98)***	0.55 (0.25)*	0.71 (0.22)***	1.14 (0.14)***	0.13 (0.15)	0.84 (0.45)	1.11 (0.40)**	0.70 (0.55)
Valid N (listwise)	465	369	425	238	3308	2270	2499	2364	739	2105	352

*: $P \leq 0.05$.
 **: $P \leq 0.005$.
 ***: $P \leq 0.001$.

that is rather settled without also accounting for differences among different ethnic groups. This renders our results as rather conservative estimates that cannot be generalized to migrants overall and especially to those who have recently arrived in their destination country.⁵ Future research should employ more representative data for migrants across countries with adequate numbers and type of information (e.g. ethnicity as stated by the respondent). Finally, the use of subjective measures of depressive symptoms as well as of a series of explanatory factors (i.e. financial strain, childhood conditions) suggests that the observed associations should be further investigated with alternative measures in future research.²³

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References

- Carta MG, Bernal M, Hardoy MC, Haro-Abad JM. Migration and mental health in Europe (the state of the mental health in Europe working group: appendix 1). *Clin Pract Epidemiol Ment Health* 2005;1:13.
- Saraga M, Gholam-Rezaee M, Preisig M. Symptoms, comorbidity, and clinical course of depression in migrants: putting psychopathology in context. *J Affect Disord* 2013;151:795–9.
- Levecque K, Lodewyckx I, Vranken J. Depression and generalised anxiety in the general population in Belgium: a comparison between native and migrant groups. *J Affect Disord* 2007;97:229–39.
- Levecque K, Lodewyckx I, Bracke P. Psychological distress, depression and generalised anxiety in Turkish and Moroccan migrants in Belgium. *Soc Psychiatry Psychiatr Epidemiol* 2009;44:188.
- Missinne S, Bracke P. Depressive symptoms among migrants and ethnic minorities: a population based study in 23 European countries. *Soc Psychiatry Psychiatr Epidemiol* 2012;47:97–109.
- Aroian KJ, Norris A. Assessing risk for depression among migrants at two-year follow-up. *Arch Psychiatr Nurs* 2002;16:245–53.
- La Parra-Casado D, Stornes P, Solheim EF. Self-rated health and wellbeing among the working-age immigrant population in Western Europe: findings from the European social survey (2014) special module on the social determinants of health. *Eur J Public Health* 2017;27:40–6.
- Chang SS, Stuckler D, Yip P, Gunnell D. Impact of 2008 global economic crisis on suicide: time trend study in 54 countries. *BMJ* 2013;347:f5239.
- Gotsens M, Malmusi D, Villarroya N, et al. Health inequality between immigrants and natives in Spain: the loss of the healthy immigrant effect in times of economic crisis. *Eur J Public Health* 2015;25:923–9.
- Sekeris P, Vasilakis C. The Mediterranean refugees crisis and extreme right parties: Evidence from Greece, 2016. Available at: https://mpra.ub.uni-muenchen.de/72222/1/MPRA_paper_72222.pdf (20 May 2018, date last accessed).
- Kentikelenis A, Karanikolos M, Papanicolaou I, et al. Health effects of financial crisis: omens of a Greek tragedy. *Lancet* 2011;378:1457–8.
- Economou M, Madianos M, Peppou LE, et al. Major depression in the era of economic crisis: a replication of a cross-sectional study across Greece. *J Affect Disord* 2013;145:308–14.
- Economou M, Angelopoulos E, Peppou LE, et al. Major depression amid financial crisis in Greece: will unemployment narrow existing gender differences in the prevalence of the disorder in Greece? *Psychiatry Res* 2016;242:260–1.
- Triandafyllidou A, Kouki H. Naturalizing racism in the center of Athens in May 2011: lessons from Greece. *J Immigrant Refugee Stud* 2014;12:418–36.
- Robert SA, House JS. Socioeconomic inequalities in health: an enduring sociological problem. *Handbook Med Sociol* 2000;5:79–97.
- Gilman SE, Kawachi I, Fitzmaurice GM, Buka SL. Socioeconomic status in childhood and the lifetime risk of major depression. *Int J Epidemiol* 2002;31:359–67.
- Krieger N. Embodying inequality: a review of concepts, measures, and methods for studying health consequences of discrimination. *Int J Health Serv* 1999;29:295–352.
- Gkiouleka A, Huijts T, Beckfield J, Bamba C. Understanding the micro and macro politics of health: inequalities, intersectionality & institutions—a research agenda. *Soc Sci Med* 2018;200:92–8.
- Losada A, Márquez-González M, Knight BG, et al. Psychosocial factors and caregivers’ distress: effects of familism and dysfunctional thoughts. *Aging Mental Health* 2010;14:193–202.
- Eikemo TA, Bamba C, Huijts T, Fitzgerald R. The first pan-European sociological health inequalities survey of the general population: the European Social Survey rotating module on the social determinants of health. *Eur Sociol Rev* 2017;33:137–53.
- Stathopoulou T, Eikemo TA, Stornes P, et al. (2017) MIGHEAL Final report. Available at: https://docs.wixstatic.com/ugd/e4b79e_11c36cc7461f48d4abddd1de b32d5e70.pdf.
- Radloff LS. The CES-D scale: a self-report depression scale for research in the general population. *Appl Psychol Measurement* 1977;1:385–401.
- Bøe T, Balaj M, Eikemo TA, et al. Financial difficulties in childhood and adult depression in Europe. *Eur J Public Health* 2017;27:96–101.
- ESS. Weighting European Social Survey Data. Available at: https://www.europeansocialsurvey.org/docs/methodology/ESS_weighting_data_1.pdf.
- De Wit MAS, Tuinebreijer WC, Dekker J, et al. Depressive and anxiety disorders in different ethnic groups: a population based study among native Dutch, and Turkish, Moroccan and Surinamese migrants in Amsterdam. *Soc Psychiatry Psychiatr Epidemiol* 2008;43:905–12.
- Schlueter E, Meuleman B, Davidov E. Immigrant integration policies and perceived group threat: a multilevel study of 27 Western and Eastern European countries. *Soc Sci Res* 2013;42:670–82.
- Meuleman B, Davidov E, Billiet J. Changing attitudes toward immigration in Europe, 2002–2007: a dynamic group conflict theory approach. *Soc Sci Res* 2009;38:352–65.
- Drydakis N. The effect of unemployment on self-reported health and mental health in Greece from 2008 to 2013: a longitudinal study before and during the financial crisis. *Soc Sci Med* 2015;128:43–51.
- Voulgarelli-Christidou C. Dangers of an urban crisis within the European Union: fueling xenophobia and undermining democracy. *Perspect Global Dev Technol* 2016;15:236–45.
- Chrysochoou X, Papastamou S, Prodromitis G. Facing the economic crisis in Greece: the effects of grievances, real and perceived vulnerability, and emotions towards the crisis on reactions to austerity measures. *J Soc Sci Educ* 2013;12:41–49.
- Reibling N, Beckfield J, Huijts T, et al. Depressed during the depression: has the economic crisis affected mental health inequalities in Europe? Findings from the European Social Survey (2014) special module on the determinants of health. *Eur J Public Health* 2017;27:47–54.
- Stuckler D, Basu S. (2013). *The Body Economic: Why Austerity Kills*. New York: Basic Books.
- Colman I, Jones PB, Kuh D, et al. Early development, stress and depression across the life course: pathways to depression in a national British birth cohort. *Psychol Med* 2014;44:2845–54.
- Vega WA, Kolody B, Valle R, Hough R. Depressive symptoms and their correlates among immigrant Mexican women in the United States. *Soc Sci Med* 1986;22:645–52.
- Lytle MC, De Luca SM, Blosnich JR. The influence of intersecting identities on self-harm, suicidal behaviors, and depression among lesbian, gay, and bisexual individuals. *Suicide Life-Threatening Behav* 2014;44:384–91.
- Blom N, Huijts T, Kraaykamp G. Ethnic health inequalities in Europe. The moderating and amplifying role of healthcare system characteristics. *Soc Sci Med* 2016;158:43–51.