

The decline of immigrant and refugee health during the life course

Annalisa Busetta*, Silvia Loi**, Anna-Kathleen Piereth**

* Department of Economics, Business and Statistics (SEAS), University of Palermo, Italy

** Max Planck Institute for Demographic Research

Abstract

The healthy immigrant effect posits that immigrants are typically healthier than the native populations in the receiving countries. This advantage is a long-lasting effect of positive immigrant selection. However, the positive selection may not hold true for refugees. Using data from the German Socio-Economic Panel, and focusing on the population aged 18-80, we study physical and mental health trajectories of refugees, and compare them with those of natives, first- and second-generation immigrants. We find that refugees do not benefit from the health selection at younger ages, and display levels of physical health that are significantly lower than those of natives, and those of first- and second-generation immigrants during their whole life course. We also observe that the levels of mental health among refugees are consistently and significantly lower compared to first- and second-generation immigrants, and the decline in mental health at older ages is more pronounced.

1 Introduction

The healthy immigrant theory posits that immigrants are typically healthier than non-migrants in their home countries and even healthier than native populations in the host country. This advantage is the long-lasting effect of positive immigrant selection: only the healthiest individuals emigrate. However, this positive selection from the origin country does not hold true for refugees. Moreover, throughout all phases of their migration journeys, including pre-departure, travel, destination, interception, and return, forcibly displaced individuals encounter a diverse array of conditions and are at a heightened risk of experiencing traumatic events (Zimmerman et al., 2011). The difference with migrants begins in the "pre-departure phase": war, famine, environmental conditions, political instability, and personal circumstances have a negative impact on health conditions, and health frequently worsens due to extended stays in refugee camps. Furthermore, the challenging journeys they often undergo significantly undermine their health (Matlin et al., 2018). In the "travel phase," the modes of transportation become particularly significant, especially for irregular migrants. Those who arrive via the Mediterranean and the Balkan routes are often subjected to smuggling and human trafficking, typically involving various extreme situations with grave consequences for their physical and mental health. The "interception phase," which involves temporary detention or interim residence, holds particular importance for forced migrants, irregular migrants, and undocumented workers, as it is associated with a high risk of developing psychological and mental health problems. In the "destination phase," primary health risks are linked to infectious diseases (as refugees sometimes come from regions with high rates of infectious diseases such as tuberculosis, hepatitis, or vaccine-preventable diseases) and to mental health issues (including trauma and post-traumatic stress disorder). However, health conditions are also significantly impacted by the stress of adapting to a new environment (concerns about family members being left behind and uncertainty about the future), as well as pre-existing chronic health conditions (such as diabetes, hypertension, or cardiovascular diseases). Additionally, refugee health risks are associated with the socio-economic, living, and working conditions they encounter upon arriving at their destination (Mendola and Busetta 2021). The consequences of their experiences during the "interception phase" also play a role. Access to healthcare services is critical, but language barriers, lack of documentation, and unfamiliarity with the healthcare system can represent serious obstacles that have profound consequences on health conditions. Finally, the "return phase" refers to the stage when individuals return to their home countries, potentially exposing them to physical and psychological well-being risks due to the cumulative impact of unfavorable social environments experienced during the migration process. It's important to note that many refugees maintain contact with their home countries; however, returning is

often not a feasible option, which leads to the establishment of new communities that transcend national boundaries (Williams, 2006: 869).

The present study intends to investigate the trajectories of mental and physical health conditions over the life course by comparing refugees with individuals from diverse migration backgrounds. The study focuses on the destination phase and utilizes multiple waves of the German Socio-Economic Panel.

2 Data and Methods

The sample of this study was based on longitudinal data from the German Socio-Economic Panel (SOEP), using the SOEP-Core version 37 (EU-Edition). The SOEP is a representative German household panel that has annually interviewed approximately 30,000 people since 1984 and is one of the largest interdisciplinary household surveys worldwide. Because of changes in the German population, various adaptations to the initial sampling structure have been made continuously to ensure the sample's representativity. Owing to the dramatically increasing number of refugees arriving in Germany in the course of the European migrant and refugee crisis since 2015, several refugee samples were additionally integrated into the SOEP in 2016 and 2017. These refugee samples included mainly participants aged 18 or older who entered Germany between January 2013 and December 2016 and filed an asylum application (irrespective of their current legal status) as well as other members of their households. Refugee respondents were drawn from the German Central Register of Foreigners and sampled through a two-stage clustered disproportional stratified sampling design (Kühne et al. 2019, Jacobsen et al. 2019, Kroh et al. 2017).

The questions regarding the general physical and mental health condition of the SOEP participants were revised in 2002 involving the inclusion of the so-called SF-12v2, which is a subset of the SF-36v2, in a two-year interval. Therefore, the present study used each wave of the SOEP that provides data on physical and mental health, i.e. the waves of 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016, 2018, and 2020. In addition, the entire set of observations from the respective survey years was limited to respondents aged 18-80 with valid information on the outcome variables, sex, age, and migration background who belonged to the groups natives (i.e. born in Germany, without migration background), asylum seekers and refugees (i.e. born abroad, arrived in Germany between 2013 and 2016 and applied for asylum indicating a direct migration background, see above), migrants (i.e. born abroad, migrated to Germany at age 18 or younger e.g. for economic reasons implying a direct migration background), and second-generation migrants (i.e. born in Germany with at least one parent who migrated to Germany meaning an indirect migration background). As a result, the study sample contains 162,201 observations in total.

Health Measure and Control Variables

Being based on the SF-12v2 that measures eight domains of health, two superordinate scale variables were conceptualized and provided by the SOEP, namely physical health (PCS, Physical Component Summary Scale) and mental health (MCS, Mental Component Summary Scale) which were used as metric dependent variables in statistical analysis. Both variables are z-transformed to a range of zero to 100 by default, with higher values corresponding to better health. The mean value for the whole German sample was standardized to 50 points, with a standard deviation of 10 points (Andersen et al. 2007). Furthermore, several independent variables were included in the statistical models: sex, age (as numeric variable), age squared (only for the investigation of physical health), immigration group, education, employment status, and marital status.

We apply linear mixed-effects models to study the health trajectory of immigrants and refugees over the life course. The models are clustered by individual.

3 Preliminary Results

Descriptive Statistics

Characteristics of the study sample are presented in Table 1. More than half of the refugees (including asylum seekers) and second-generation migrants were 34 years old or younger, while this share did only account for 32.4% in first-generation migrants and 12.4% in natives. The gender distribution in the particular subgroups was approximately balanced except for refugees with 62% being male. The majority of natives, refugees, and first-generation migrants was married or rather living with a partner, while the predominant part (50%) was single and a relatively smaller share (41%) was married / living

with a partner in second-generation migrants. Compared to natives, higher percentages of refugee-seeking individuals were single (27% vs. 16%) and separated but legally married (8% vs. 2.5%). With respect to the highest level of education, roughly six out of ten refugees and one third of the first-generation migrants reported having a level of education that is equivalent to less than high school, while this was only the case for 21% of second-generation migrants and 7.9% of natives. Regarding the respondents' employment status, approximately two thirds up to three quarters of natives, first-generation migrants and second-generation migrants were employed. A reverse picture emerged for refugees with the vast majority (86%) being not employed. All natives and second-generation migrants were, by definition, born in Germany. First-generation migrants were mostly born in Turkey 12%, Poland 11%, Russia and Italy 5%.

Table 1: Descriptive characteristics of the study sample (N=162,201).

Characteristic	Total, N = 162,201 ¹	Natives, N = 126,658 ¹	Refugees, N = 11,206 ¹	Migrants, N = 14,674 ¹	Second-generation migrants, N = 9,663 ¹
Age (years)					
18-24	9,448 (5.8%)	3,451 (2.7%)	2,144 (19%)	1,086 (7.4%)	2,767 (29%)
25-34	22,597 (14%)	12,315 (9.7%)	3,749 (33%)	3,653 (25%)	2,880 (30%)
35-44	32,831 (20%)	22,722 (18%)	3,197 (29%)	4,528 (31%)	2,384 (25%)
45-54	36,722 (23%)	31,095 (25%)	1,564 (14%)	2,987 (20%)	1,076 (11%)
55-64	28,923 (18%)	26,480 (21%)	458 (4.1%)	1,569 (11%)	416 (4.3%)
65-80	31,680 (20%)	30,595 (24%)	94 (0.8%)	851 (5.8%)	140 (1.4%)
Sex					
Male	78,255 (48%)	60,360 (48%)	6,944 (62%)	6,555 (45%)	4,396 (45%)
Female	83,946 (52%)	66,298 (52%)	4,262 (38%)	8,119 (55%)	5,267 (55%)
Marital status					
Married/living with partner	102,902 (63%)	82,465 (65%)	6,640 (59%)	9,817 (67%)	3,980 (41%)
Single	31,138 (19%)	20,366 (16%)	3,061 (27%)	2,864 (20%)	4,847 (50%)
Widowed	7,790 (4.8%)	7,241 (5.7%)	200 (1.8%)	280 (1.9%)	69 (0.7%)
Divorced	14,959 (9.2%)	12,989 (10%)	310 (2.8%)	1,127 (7.7%)	533 (5.5%)
Separated (legally married)	4,752 (2.9%)	3,148 (2.5%)	896 (8.0%)	499 (3.4%)	209 (2.2%)
No answer	660 (0.4%)	449 (0.4%)	99 (0.9%)	87 (0.6%)	25 (0.3%)
Education					
Less than high school	23,525 (15%)	9,963 (7.9%)	6,638 (59%)	4,876 (33%)	2,048 (21%)
High school	88,870 (55%)	78,569 (62%)	627 (5.6%)	4,609 (31%)	5,065 (52%)
More than high school	46,015 (28%)	37,773 (30%)	1,926 (17%)	4,613 (31%)	1,703 (18%)
No answer	3,791 (2.3%)	353 (0.3%)	2,015 (18%)	576 (3.9%)	847 (8.8%)
Employment status					
Employed	104,022 (64%)	84,359 (67%)	1,620 (14%)	10,702 (73%)	7,341 (76%)
Not employed	58,179 (36%)	42,299 (33%)	9,586 (86%)	3,972 (27%)	2,322 (24%)
Country of birth					
Germany	136,321 (84%)	126,658 (100%)	0 (0%)	0 (0%)	9,663 (100%)
Italy	756 (0.5%)	-	0 (0%)	756 (5.2%)	-
Poland	1,627 (1.0%)	-	0 (0%)	1,627 (11%)	-
Russia	908 (0.6%)	-	162 (1.4%)	746 (5.1%)	-
Syria	6,377 (3.9%)	-	6,299 (56%)	78 (0.5%)	-
Turkey	1,813 (1.1%)	-	12 (0.1%)	1,801 (12%)	-
Other	14,399 (8.9%)	-	4,733 (42%)	9,666 (66%)	-
Years since arrival in Germany					
1 or less	-	-	2,626 (23%)	582 (4.0%)	-

Characteristic	Total, N = 162,201 ¹	Natives, N = 126,658 ¹	Refugees, N = 11,206 ¹	Migrants, N = 14,674 ¹	Second-generation migrants, N = 9,663 ¹
2	-	-	1,689 (15%)	588 (4.0%)	-
3	-	-	2,808 (25%)	725 (4.9%)	-
4	-	-	1,226 (11%)	691 (4.7%)	-
5	-	-	2,080 (19%)	578 (3.9%)	-
6-9	-	-	698 (6.2%)	2,241 (15%)	-
10 or more	-	-	42 (0.4%)	9,097 (62%)	-
No answer	-	-	37 (0.3%)	172 (1.2%)	-
Immigrant generation					
1.25 generation	-	-	647 (5.8%)	864 (5.9%)	-
1.5 generation	-	-	1 (<0.1%)	1,229 (8.4%)	-
1.75 generation	-	-	2 (<0.1%)	941 (6.4%)	-
First generation	-	-	10,519 (94%)	11,468 (78%)	-
No answer	-	-	37 (0.3%)	172 (1.2%)	-

Source: Authors' elaborations on SOEP-Core v37.

The distribution of countries of origin of refugees is presented in Table 2. The most prevalent countries of origin (with a proportion higher than 10%) are Syria (56%), Iraq (13%) and Afghanistan (11%). A large share of refugees (63%) had arrived in Germany three years ago or earlier (see Table 1), while the largest part (62%) of the first-generation migrants had immigrated 10 or more years ago. With concern to the age at arrival in Germany grouped into immigrant generations according to Rumbaut (2004), the majority of refugees and first-generation migrants had arrived in Germany at age 18 or older (94% or rather 78%), nearly 6% percent of refugees and first-generation migrants had migrated at ages 0-5 years (1.25 generation), and almost no refugee-seeking individuals had migrated at ages 6-12 years (1.5 generation) and 13-17 years (1.75 generation).

Table 2: Refugees' countries of origin in the study sample.

Country of origin	N = 11,206 ¹
Syria	6,299 (56%)
Iraq	1,467 (13%)
Afghanistan	1,217 (11%)
Eritrea	501 (4.5%)
Iran	264 (2.4%)
Russia	162 (1.4%)
Pakistan	153 (1.4%)
Somalia	124 (1.1%)
Serbia	83 (0.7%)
Kosovo	75 (0.7%)
Others	861 (7.7%)

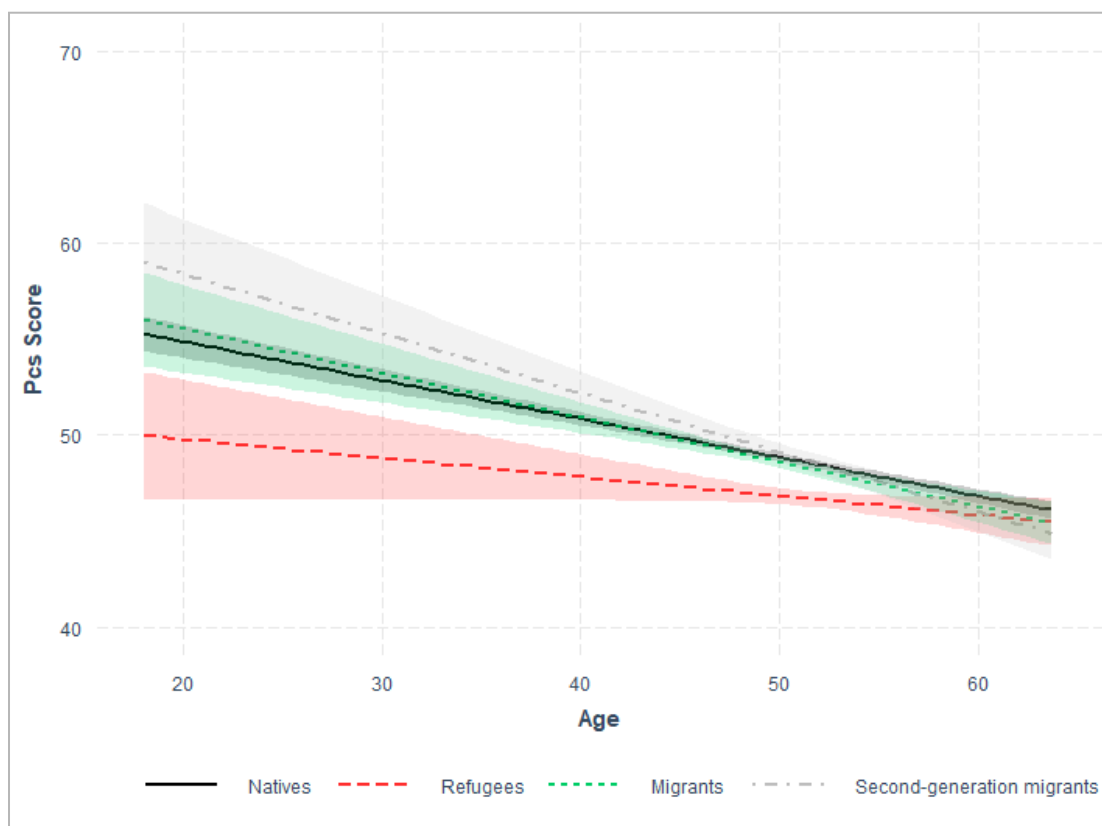
Source: Authors' elaboration on SOEP-Core v37.

The relationship between physical health, age, and migration background

The results of the linear mixed-effects models are plotted in the two next figures that show the trajectory of the physical component summary (PCS) and of the mental component summary (MCS) over the life course, for natives (German-borns), refugees, first-generation and second-generation immigrants. As evident from Figure 1 at younger ages both first-generation and second-generation immigrants are positively selected on health, compared to natives, as they display higher PCS levels

(higher scores of PCS correspond to better physical health). Refugees, on the other hand, do not benefit from the health selection at younger ages, as hypothesized. As age increases, we observe differences in the speed of decline of physical health, depending on the migration background. Second-generation immigrants have the steepest decline, followed by first-generation immigrants. Both groups converge to the PCS levels of natives at around age 50. Refugees have a less steep decline, but display levels of physical health that are significantly lower than those of natives, and those of first- and second-generation immigrants during their whole life course.

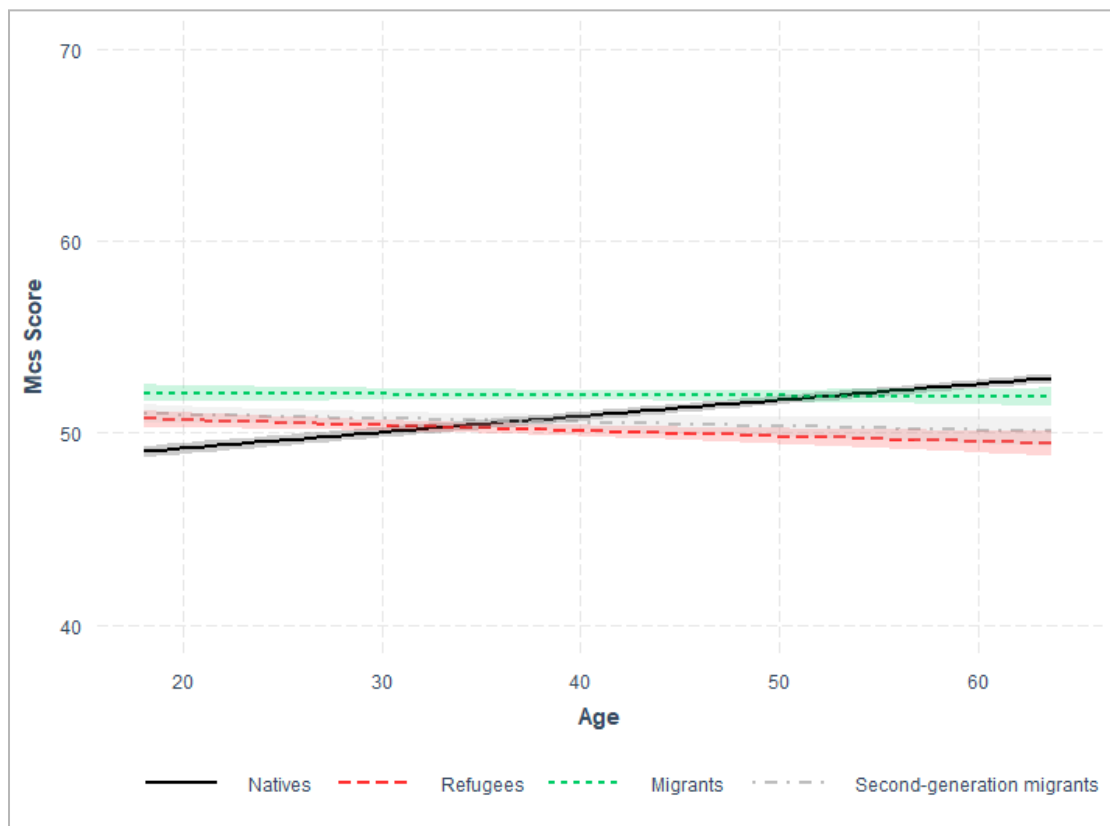
Figure 1: PCS Score by immigration group in the study sample (N=162,201).



Source: Authors' elaborations on SOEP-Core v37.

Figure 2 shows the same trajectory, but on the mental component summary (MCS). The trajectory of mental health is dramatically different than that of physical health. The declines by age are not striking, for any of the groups, but we clearly observe that the levels of mental health of refugees are consistently and significantly lower compared to first- and second-generation immigrants, and the decline in mental health at older ages is higher. The trajectory of natives may seem counterintuitive and needs further exploring. A preliminary interpretation of the mental health advantage of refugees over natives at young ages suggests that refugees might benefit from having moved to a safer and more favorable environment compared to the one left behind in their origin countries.

Figure 2: MCS score by immigration group in the study sample (N=162,201).



Source: Authors' elaboration on SOEP-Core v37.

Next analytical steps:

In the next steps, we plan to further analyze the trajectory of mental health. Andersen et al. 2007 (p. 179) suggest that there is only low variation of the MCS Score with age and, in contrast to the physical health scale, no clear linear effect. Consequently, the application of linear mixed-effects models with the underlying assumption of a linear predictor expression might be inadequate. Models capturing non-linear and complex relationships between variables, such as polynomial regression models, will be tested in further analysis.

In the current version of the models, we do not use weights accounting for the “non-random probability sampling design” of the SOEP. The data might be biased toward respondents' selection into the sample, selective drop-outs, and changes in the population. In the next steps, the analysis will include sampling weights in order for the results to be fully representative of the refugee population in Germany.

References

- Andersen H.H., Mühlbacher, A., Nübling, M., Schupp, J., Wagner, G.G. (2007). Computation of Standard Values for Physical and Mental Health Scale Scores Using the SOEP Version of SF-12v2. In: Schmollers Jahrbuch (Proceedings of the 7th International Socio-Economic Panel User Conference (SOEP2006), ed. by Ferrer-i-Carbonell, Ada; Grabka, Markus M. and Kroh, Martin) 127 (2007), 1, 171-182.
- IAB-BAMF-SOEP Survey of Refugees (M3-M5), data of the years 2016-2020, DOI: [10.5684/soep.iab-bamf-soep-mig.2020](https://doi.org/10.5684/soep.iab-bamf-soep-mig.2020)
- Jacobsen, J., Kroh, M., Kühne, S., Scheible, J.A., Siegers, R., Siegert, M. (2019). Supplementary of the IAB-BAMF-SOEP Survey of Refugees in Germany (M5) 2017. SOEP Survey Papers; 605: Series C - Data Documentations (Datendokumentationen).

- Kroh, M., Kühne, S., Jacobsen, J., Siegert, M., & Siegers, R. (2017). Sampling, nonresponse, and integrated weighting of the 2016 IAB-BAMF-SOEP survey of refugees (M3/M4) – Revised version. Berlin: German Institute for Economic Research.
- Kühne, S., Jacobsen, J., & Kroh, M. (2019). Sampling in times of high immigration: The survey process of the IAB-BAMF-SOEP survey of refugees. *Survey Methods: Insights from the Field*. <https://doi.org/10.13094/SMIF-2019-00005>.
- Matlin, S. A., Depoux, A., Schütte, S., Flahault, A., & Saso, L. (2018). Migrants' and refugees' health: towards an agenda of solutions. *Public Health Reviews*, 39(1), 1-55.
- Mendola, D., Busetta, A. (2021). Family networks and refugees' health conditions. A picture from Italian informal settlements. *Migration Letters*, 18(6), 675-685.
- Mendola, D., Parroco, A.M., & Li Donni, P. (2020). "Accounting for Interdependent Risks in Vulnerability Assessment of Refugees". In: A. Pollice, N. Salvati, & F. Schirippa Spagnolo (eds.) Book of short papers SIS 2020, Rome: Pearson 1418-1423. ISBN: 9788891910776.
- R Core Team (2023): *_R: A Language and Environment for Statistical Computing_*. R. Foundation for Statistical Computing, Vienna, Austria. <https://www.r-project.org/>
- Rumbaut, R. G. (2004), Ages, Life Stages, and Generational Cohorts: Decomposing the Immigrant First and Second Generations in the United States. *International Migration Review*, 38(3), 1160-1205.
- Socio-Economic Panel (SOEP), data for years 1984-2020, SOEP-Core v37, EU Edition, 2022, doi:10.5684/soep.core.v37eu
- Williams, L. (2006). "Social Networks of Refugees in the United Kingdom: Tradition, Tactics and New Community Spaces". *Journal of Ethnic and Migration Studies*, 32 (5): 865–879. <https://www.tandfonline.com/doi/abs/10.1080/13691830600704446>
- Zimmerman, C., Kiss, L., Hossain, M. (2011) Migration and Health: A Framework for 21st Century Policy-Making. *PLoS Med* 8(5): e1001034. <https://doi.org/10.1371/journal.pmed.1001034>