wiiw

NOVEMBER 2019

Working Paper 169

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Research for this paper was financed by the Anniversary Fund of the Oesterreichische Nationalbank (Project No. 17166). Support provided by Oesterreichische Nationalbank for this research is gratefully acknowledged.

Abstract

Given the exposure to stressors in their home countries, during their migration and in the phase after arrival, refugees are particularly vulnerable to mental health problems. At the same time, their access to adequate healthcare and other social infrastructure might be hampered by factors such as lack of knowledge as well as cultural and language barriers. In addition to other factors, this reduces their ability to take part in social activities as well as their integration into the labour market of the host societies. We examine the prevalence of mental disorders in the refugee population from Afghanistan, Iraq and Syria who arrived in Austria recently, drawing on data from a refugee survey conducted between December 2017 and April 2018 in Austria with a specific focus on Vienna, Salzburg, Graz, Linz and Innsbruck (FIMAS+INTEGRATION). We found a high share of refugees (32%) to have moderate or severe mental health problems. In particular, young refugees (15-34 years) show higher risk levels. When investigating the effects of stressors on the mental health situation, we found a positive association with e.g. experienced discrimination in Austria and the fear for partners and children left behind. In contrast, the results show a negative correlation for a couple of mitigating factors that foster resilience, i.e. proficiency in the German language, being employed (including volunteer work), having more supportive relationships and satisfaction with the housing situation.

Keywords: refugees, mental health, social integration, labour market integration

JEL classifications: I10, J15, F22

CONTENTS

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1. Introduction

Mental health problems are a serious barrier for the integration of immigrants into the host societies (Aroian et al., 1998). Refugees in particular are exposed to various risk factors for mental health problems before, during and after migration. Pre-migration risk factors for mental distress are persecution, exposure to potentially traumatic events in person or as a witness and exposure to, or involvement in, armed conflicts. Many refugees have to face economic hardships including having their basic needs not met. Peri-migration risk factors are exposure to physical harm and life-threatening conditions during migration. Separation from family members and from support networks are additional stressors. Post-migration risk factors are manifold and include uncertainty about the asylum application, unmet health needs, fear for family members left behind, lack of close relationships, lack of social integration including difficulties in entering the labour market, recognition of degrees, loss of social status and difficult socioeconomic conditions including unsatisfactory housing conditions (Priebe et al., 2016; Giacco and Priebe, 2018). These particular risk factors for mental distress of refugees overlap with the general acculturative stress experienced by immigrants relating to loss, unfamiliarity with the tasks of daily living, unfamiliar (or very limited) occupational options, language barriers, discrimination and feeling marginalised in the new surroundings or social structure (e.g. Aroian et al., 1998).

Although data on mental health problems of refugees having resettled in Europe in the years following 2014 is still scarce, it can be assumed that this population group shows high prevalence rates of mental disorders since they originated from war-affected countries like Afghanistan, Syria and Iraq. In general, refugee groups from countries with intense human rights violations show higher rates of mental health problems (Lindert et al., 2018). In the case of Germany, the prevalence of mental health disorders is reported to be significantly higher for refugees as compared to the host population (Nesterko et al., 2019; Frank et al., 2017).

Austria was an important receiver of asylum seekers in Europe in recent years. In the period 2014-2018, 197,000 asylum applications were filed in Austria (Eurostat 2019) and roughly 109,000 individuals were officially granted asylum (including subsidiary protection and protection on humanitarian grounds) (BMI 2019). Between 2014 and 2018, six out of ten asylum applicants in Austria had Syrian, Afghan or Iraq nationality.

In this paper, we examine the level of mental distress and thus the likelihood of mental disorders of adult refugees particularly from Afghanistan, Iraq and Syria who recently arrived in Austria. We draw on primary data from a recent refugee survey conducted in Austria between December 2017 and April 2018 (FIMAS+INTEGRATION). We describe the level of mental distress perceived and examine the moderating effects of stressors and supportive factors for resilience by applying multivariate regression analysis.

2. Literature review

In the literature on moderators of mental distress of refugees, the actual resident status of forced migrants' was found to have a significant impact on the prevalence of trauma-related mental-health disorders: For Switzerland, Heeren et al. (2014) found that asylum seekers were more likely to suffer from post-traumatic stress disorder (PTSD) than recognised refugees. The rate of depression among asylum seekers was nearly twice as high as compared to that of migrants with permanent residency claims (and hence access to the labour market, language courses and other activities). Lack of security and fear of deportation, connected to economic instability, substandard housing, and feelings of guilt and shame for having survived, tend to be the most relevant risk factors for developing mental health disorders, which can be exacerbated by a lengthy asylum process (Laban et al. 2005). Given the risk factors refugees are exposed to before, during and post migration, high prevalence rates of mental disorders are expected in comparison to the host population. Empirical evidence regarding PTSD exists (e.g. Priebe et al. 2016). According to recent studies in Germany, the prevalence is reported to be significantly higher for refugees compared to the host population (Nesterko et al., 2019; Frank et al., 2017).

Systematic reviews on the prevalence of mental health disorders among refugees reveal a substantial variability in outcomes (Priebe et al., 2016; Bogic, 2015; Fazel et al., 2005), particularly when the specific, most common disorders (depression, general anxiety disorder and PTSD) are investigated. In studies applying population-based sampling methodology, estimates on the prevalence of PTSD vary between 16.4% and 54.9% (Bozorgmehr et al., 2016). Variability in outcomes is due to the fact that refugee populations and their mental distress levels diverge between diverse countries of origin on the one hand and that reception conditions are different in host countries on the other hand.

More significantly, the differences in sample selection and methodological approaches result in strong variations in prevalence rates. Studies using a more representative sampling methodology were shown to result in lower prevalence rates than research applying convenience sampling (Bozorgmehr et al., 2016). In the case of PTSD, the estimated mean of prevalence for the total refugee population is 9% in Europe, which is much higher than the 1%-3% for the host population (Priebe et al., 2016). For depression and general anxiety disorder, however, results are more diverse. While Priebe et al. (2016) found no systematic differences between total refugee populations and host country populations regarding short-term resettled people, Turrini et al. (2017) claimed in their review that prevalence rates of depression and anxiety disorders are as high as rates of PTSD.

Reasons for the lack of differences in the cases of depression and general anxiety disorder in research applying population-based samples can be manifold. Refugees, and particularly those with mental distress, are a much more difficult group to survey in a representative way due to issues such as accessibility, mobility, trust and concerns about the stigma of health problems (Enticott et al., 2017). Cultural differences in revealing information on personal mental distress (Kohrt et al., 2014) and in recognising mental health concerns (Weigl and Gaiswinkler, 2019) do matter for refugee–host population differences in prevalence rates and may moreover constitute a barrier for access to care.

Thus, while selection bias might overstate the prevalence rate of mental health problems in the case of convenience-based sampling (survey samples of refugees living in camps, visitors of specific health or supporting institutions), studies using population-based samples might understate disorder prevalence in the refugee populations resettled in Europe. This is in line with Bogic et al. (2015), whose systematic review reported higher prevalence rates for the long-term resettled refugee population in comparison to the host population not only for PTSD, but also for depression and anxiety disorders.

Somatization symptoms (medically unexplained physical symptoms) are also more common among refugees. Comorbidity of somatic symptoms[1] is particularly high with PTSD (Liedl and Knaevelsrud, 2008) but also occurs with other mental disorders (Priebe et al., 2016; Lolk et al., 2016). Prevalent somatization symptoms include pain, e.g. in back, heart and muscles, and feelings of physical weakness (Morina et al., 2018).

Resilience, i.e. the capability of people to adapt to psychological distress and (potentially) traumatic events (Bonanno, 2004; Yehuda, 2004; McLaughlin et al., 2009) is likely to help refugees not only to overcome mental health problems triggered by harsh conditions before resettlement, but also to cope with post-migration stressors. Psychological resilience of refugees can be improved by external conditions (particularly available social support), but is also affected by individual factors such as education, religion and belief systems (Siriwardhana et al., 2014).

[1] Physical symptoms or illness accompanying mental health problems.

3. Data and methodology

The FIMAS+INTEGRATION survey was carried out by the International Centre for Migration Policy Development (ICMPD) in cooperation with the University of Graz and the Vienna Institute for International Economic Studies (wiiw). FIMAS+INTEGRATION is the second wave of a longitudinal refugee survey in Austria. The first wave (FIMAS) was carried out between August 2016 and Mai 2017. Interviews of FIMAS+INTEGRATION were conducted between December 2017 and April 2018 via different survey modes. In a first step, computer assisted self-administered and personal interviews (CASI) were carried out at various relevant establishments (public employment services, counselling and training centres for migrants, etc.) in Vienna, Salzburg, Graz, Linz and Innsbruck (i.e. in Austria's capital and other Austrian cities). Second, refugees were invited via mail in order to expand the coverage of the survey. Therefore, an invitation to the online version of the survey was sent by e-mail to addresses provided by the public employment service of Austria (the AMS). This second part of the survey was based on a stratified random sample of refugees registered in the AMS database. In total, 1,635 refugees participated in the survey. As intended, the majority of the participants originated from Syria, Iraq and Afghanistan. A small number of other refugees – mostly from Iran – and persons, who were still in the asylum application process, also entered the sample at the interview stage.

Apart from demographic and household characteristics, the questionnaire focused specifically on labour market issues and additionally covered various spheres of life of the refugees from which we selected those that are associated with mental health, like social and cultural integration, qualifications, physical health and well-being, migration experiences and housing. Further, a number of possible stressors and resilience factors that could influence the level of mental strain of refugees were also captured in the survey. Demographic characteristics comprised age (in the 15-60 years bracket), gender and detailed information on the household structure. Thus, we know not only whether a person lived in partnership and the number of children, but also if the latter or further family members lived in the same household at the time of the interview.

Information on physical health included self-rated health and health problems, in particular the level of physical pain experienced in the past four weeks was reported. Since physical health problems can result in psychological strain, we included this information as a control variable. The subjective impression of physical pain was measured on a 6 item Likert-scale from 'no pain' (0) to 'very strong pain' (5).

For reasons of research ethics and in order to prevent potential re-traumatisation of respondents, information on potentially traumatic events before and during migration that could have had an influence on their mental health at the time of the interview was not captured. In order to examine the effect of the migration experience on respondents, we can only use the information on the duration of their journey (captured in months), assuming that longer periods increase mental distress levels. These might also remain elevated after arriving in the host country. Once refugees have found a safe place to reside, we might expect stress levels to decline. Therefore, we calculated the time elapsed since the arrival in Austria.

The majority of the refugees interviewed had been granted asylum or the status of subsidiary protection. However, some persons were still in the asylum application procedure, which is captured by a dummy variable. Since in recent years, only half of the asylum seekers received a positive decision of their asylum application (e.g. 51% in 2017) (Expert Council for Integration, 2018), we expect refugees to experience the asylum application procedure as a state of limbo and therefore a very stressful period. We included a dummy variable for respondents still in the asylum procedure.

Our data covers information on acculturative stress. On the one hand, experienced discrimination was measured on a 5 item Likert-scale from 'never' to 'very often'. On the other hand, the inability to communicate in the host country's language, which hinders refugees in finding their way in the society, was also reported. We used the mean value of the information from the questions: 'How well do you understand German' and '… speak German'. In both cases a 5 item Likert scale from 'not at all' to 'like my mother tongue' was applied.

Close relationships with relatives and friends are known to help people coping with stressful episodes in their lives. Refugees were asked if they knew someone in Austria who would help them in different circumstances. One relevant question was if they had a person with whom they could talk about personal problems. This information has been used as a dummy variable.

Having contact to people outside of the inner family circle fosters integration of individuals into society. In order to measure the extent of the social network of a person, the refugees were asked: 'How many people do you know in Austria whom you feel close to?'. Thus, the question covers only the inner circle of well-known persons and not random acquaintances. A cut-off point of 50 persons was imposed on this variable.

Information on educational attainment was classified according to ISCED 2011. However, the information was originally supplied according to the national schooling system in the country of origin. Conversion into the ISCED classification was, particularly in the case of Afghanistan, ambiguous.

Economic as well as social integration into the host society is fostered by employment. We included a dummy variable if the respondent was working, irrespective of whether it is paid employment or voluntary work. Furthermore, detailed information on the housing situation (type and size) was collected. In order to have a measure for housing, we chose the simple subjective information on satisfaction with the housing situation, which was an 11 item Likert scale from 'very unsatisfied' (0) to 'very satisfied' (10).

3.1. MEASURING MENTAL DISTRESS

In order to measure the level of mental distress, we applied the Kessler-10 scale (K10). The K10 scale is a simple measure of non-specific psychological distress and therefore does not focus on a specific mental health diagnosis like depression or anxiety disorder (Kessler et al, 2002). It has been applied in the case of the US National Health Interview Survey and the Australian National Health Survey and comprises ten questions about mental distress symptoms experienced during the previous four weeks, e.g. 'In the past 4 weeks; about how often did you feel so nervous that nothing could calm you down?' or '…about how often did you feel that everything was an effort?'. Answers are based on a 5 item Likert scale from 'none of the time' (1) to 'all of the time' (5). Scores of the 10 items are then summed up,

yielding a minimum total score of 10 and a maximum score of 50. A score of 20-24 is interpreted as being at risk of a mild form of mental distress, 25-29 as a risk of having a moderate mental health problem and 30 and above as a risk of a severe mental health problem at the time of the interview. The distinction between moderate and severe mental health problems follows the Global Assessment of Functioning (GAF) Scale (APA, 2010): Moderate forms of mental health problems are likely when persons show symptoms like occasional panic attacks or flat affect[2] and circumstantial speech. Severe mental health problems are evident when at least serious symptoms (e.g. suicidal ideation, severe obsessional rituals) or any serious impairment in social or occupational functioning (e.g., no friends, unable to keep a job) are present.

3.2. MULTIVARIATE ESTIMATION APPROACH

We study determinants of mental distress by estimating the following specification:

$$(1)\quad y_i = \beta_0 + \beta \boldsymbol{x_i} + \epsilon_i,$$

In multivariate analyses, we provide models with two different dependent variables, a linear and a dichotomous one. In our regression Models [1] and [3], y_{i} is the value on the Kessler scale ranging from 10 to 50. In order to rule out effects of heteroscedasticity, we estimate applying robust standard errors. In our regression Models [2] and [4], y_{i} is a dummy variable which indicates whether individuals experience levels of distress that indicate moderate or severe mental health problems. In those cases psychotherapeutic treatment is recommended or necessary. $\boldsymbol{x_i}$ is the vector of explanatory variables and ϵ_{i} the error term.

The set of explanatory variables includes age groups, gender and educational attainment level, level of physical pain, duration of migration and time of stay in Austria in months, dummies to indicate whether the respondent is still in the asylum application procedure, lives with a partner in a household, with children, or if he/she has a partner left behind in the home country or another foreign country, or children not living in the household. Further dummies indicate if the respondent has someone to talk to about personal problems or if he/she is working (paid or unpaid/voluntary work). The scores of the Likert scales were applied for information on proficiency in the German language, experienced discrimination and housing satisfaction. In addition, country of origin, province of residence in Austria and the mode of the interview were used as control variables.

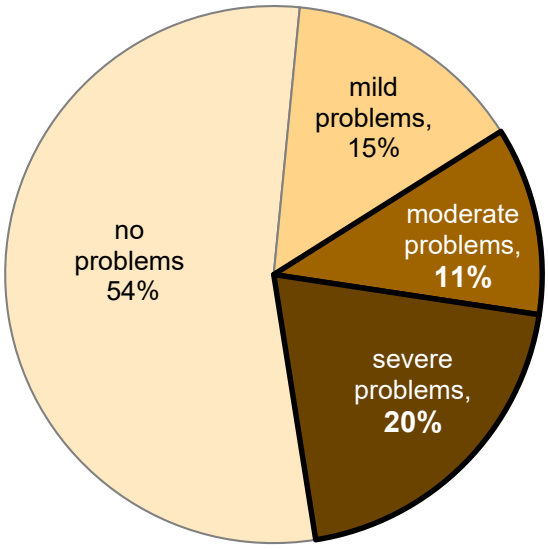
A limitation of our analysis is that we do not control for endogeneity. In a number of explanatory variables, e.g. working or language proficiency, an endogeneity bias is likely to exist due to reverse causality or omitted characteristics of respondents. Since our data is not longitudinal, we would have to apply an instrumental variable approach. However, since proper variables did not seem to be at hand, we refrained from doing that. As a consequence, our results cannot be interpreted as causal in a number of explanatory variables.

[2] strong reduction in emotional expressiveness (monotonous voice and/or diminished facial expressions)

4. Empirical results

In the FIMAS+INTEGRATION survey, 1,518 out of the 1,635 interviewed refugees provided enough information to calculate a composite score at the K10 scale. In this remaining sample, about 79% of the respondents are men (see Table 1 below). Younger age groups between 15 and 34 years dominate. Close to 60% of the refugees are from Syria, 27% from Afghanistan, a further 14% from Iraq and only 1.5% from Iran. Those having arrived in 2015 account for about half of the sample; the rest of the sample is divided equally between the arrival cohorts before 2014, 2014 and 2016-2018.

Figure 1 / Indication of mental health problems in the surveyed refugee population



Source: FIMAS+INTEGRATION, own calculations, N = 1,518.

Descriptive results show that 20% of the refugees in our sample state a level of mental distress that suggests a severe mental health problem at the time of the interview (see Figure 1). A further 11% are likely to have moderate mental health problems while another 15% are slightly stressed. The remaining refugees, i.e. 54% of the respondents, state no or only negligible symptoms of mental distress and can be counted as unstressed. Women are on average more at risk (35%) of having moderate or severe, i.e. clinically relevant problems, as compared to men (31%). In the general population in Austria and other European countries, women display a significantly higher risk than men for certain mental health diseases (Kerkenaar et al., 2013).

Younger age groups (15-24 years: 35%; 25-34 years: 33%) show significantly higher risk levels compared to middle and older aged refugees (35-44 years: 24%; 45-60 years: 28%). In our sample, refugees from Iran are the group most affected by moderate or severe problems (41%), followed by

refugees from Iraq (41%), Syria (31%) and Afghanistan (28%). Refugees that immigrated in 2015 show a higher level of mental distress than those who arrived in the years before.

Table 1 / Descriptive results of the FIMAS+INTEGRATION refugee sample

		Subgroups, in %	K-10 score, mean value	moderate or severe mental health problems, in %
Total population			**20.9**	**31.6**
Gender				
	Men	79.0	20.5	30.7
	Women	**21.0**	**22.3**	**35.1**
Age group				
	15-24	**33.1**	**21.5**	**34.9**
	25-34	**39.8**	**20.7**	**32.5**
	35-44	18.7	19.5	24.3
	45-60	8.4	20.8	27.7
Country of origin				
	Afghanistan	27.1	20.5	28.1
	Iraq	**13.7**	**22.6**	**40.7**
	Syria	57.8	20.5	31.0
	Iran	1.5	**23.5**	**40.9**
Year of arrival				
	before 2014	17.6	20.8	31.0
	2014	16.2	20.1	28.0
	2015	**48.7**	**21.0**	**33.0**
	2016-2018	17.5	21.1	31.4

Source: FIMAS+INTEGRATION, own calculations.

The observed shares of refugees with mental health problems may seem high, but are in line with the results of refugee surveys performed in other countries, where the Kessler-10 scale was applied to measure mental distress, like in the case of Australia (De Maio et al, 2017).

4.1. REGRESSION RESULTS

In the multivariate framework, various stressors and protective factors were significantly associated with mental distress. In the following section we will discuss particularly the results of our regression Model [1] in Table 2. As mentioned already above, when interpreting the results, we should be aware of the existence of endogeneity. Thus in the case of a number of variables, strictly speaking, we cannot assume causal effects but just correlations.

Since the interviewed refugees did not answer all the questions in the various thematic fields, the regression includes 794 individuals at most.[3] The signs of the coefficients of the standard explanatory variables are as expected; however, not all of those are significant. The level of mental distress turned out to be substantially higher for younger refugees. The age groups 15-24 and 25-34 show much higher

[3] A sensitivity analysis for this remaining sample concerning the descriptive results is presented in Table A.1 in the Appendix showing no obvious bias.

levels of mental distress than the reference group aged 35-44 years. The result of higher distress for older respondents (45-60 years) is not significant.

In our descriptive analysis, women were found to be more mentally distressed than men. However, in our multivariate regression, this result is only significant at the 10% level – other moderators seem to have a stronger influence. When examining the effects of physical health problems, we can see that currently experienced physical pain is associated with the mental state of a person.

Table 2 / Regression results

	[1]	[2]	[3]	[4]
Regression models	OLS	logit	OLS	logit
Dependent variable	Kessler 10 score (10-50)	medium or severe mental health state	Kessler 10 score (10-50)	medium or severe mental health state
Years of arrival	all	all	2014-2018	2014-2018
Age groups (reference group: 35-44)				
15-24 years	3.426***	1.049***	3.808***	1.103***
	(1.115)	(0.334)	(1.211)	(0.362)
25-34 years	2.377***	0.804***	2.287***	0.759**
	(0.825)	(0.278)	(0.884)	(0.298)
45-60 years	0.843	0.186	0.906	0.030
	(1.081)	(0.378)	(1.204)	(0.443)
Women	1.446*	0.223	1.154	0.287
	(0.850)	(0.241)	(0.945)	(0.278)
Physical pain (reference group: no pain)				
very slight	2.768***	0.594**	2.719***	0.596**
	(0.827)	(0.252)	(0.895)	(0.280)
slight	3.017***	0.813***	3.002***	0.850***
	(0.910)	(0.267)	(0.985)	(0.286)
moderate	4.930***	1.167***	5.410***	1.312***
	(0.897)	(0.248)	(0.942)	(0.266)
strong	5.899***	1.028**	5.940***	0.982**
	(1.544)	(0.399)	(1.719)	(0.421)
very strong	-1.321	-0.100	-5.051	-1.225
	(3.485)	(0.891)	(3.582)	(1.367)
Duration of migration in months	0.007	0.000	0.009	-0.000
	(0.011)	(0.004)	(0.015)	(0.005)
Months since arrival in Austria	0.012	0.004*	0.014	0.011
	(0.008)	(0.002)	(0.038)	(0.012)
Asylum application pending	6.226***	1.664***	6.522***	1.927***
	(1.705)	(0.480)	(1.753)	(0.520)
Living with a partner in same household	0.598	0.220	0.441	0.275
	(0.801)	(0.251)	(0.856)	(0.275)
Having a partner, who is living in	3.234**	1.014**	1.051	0.355
home country or other foreign country	(1.577)	(0.421)	(1.600)	(0.515)
Living with children in same household	-0.791	-0.240	-0.860	-0.347
	(0.921)	(0.270)	(0.990)	(0.297)
Having children, who are not living	3.284**	1.085**	3.758**	1.420***
in the same household	(1.616)	(0.468)	(1.733)	(0.525)
Living with further family members	-1.324*	-0.297	-1.834**	-0.452*
	(0.774)	(0.242)	(0.808)	(0.263)

ctd.

Table 2 / continued

	[1]	[2]	[3]	[4]
Regression models	OLS	logit	OLS	logit
Dependent variable	Kessler 10 score (10-50)	medium or severe mental health state	Kessler 10 score (10-50)	medium or severe mental health state
Years of arrival	all	all	2014-2018	2014-2018
Someone to talk to	-1.198*	-0.140	-1.168*	-0.162
	(0.648)	(0.198)	(0.695)	(0.217)
Social network	-0.362***	-0.094***	-0.349***	-0.081**
	(0.085)	(0.029)	(0.088)	(0.032)
Social network^2	0.007***	0.002***	0.007***	0.001**
	(0.002)	(0.001)	(0.002)	(0.001)
Education (reference group: ISCED 0)				
ISCED 1	3.363***	1.272***	2.990**	1.188**
	(1.298)	(0.473)	(1.422)	(0.603)
ISCED 2	3.916***	1.361***	3.152**	1.195*
	(1.404)	(0.494)	(1.537)	(0.622)
ISCED 3-4	3.126**	1.275***	3.300**	1.357**
	(1.255)	(0.466)	(1.373)	(0.587)
ISCED 6-8	3.878***	1.312***	4.166***	1.434**
	(1.341)	(0.483)	(1.461)	(0.605)
Working	-2.004***	-0.397*	-1.843**	-0.325
	(0.654)	(0.203)	(0.717)	(0.224)
Language proficiency	-1.075**	-0.325**	-0.930*	-0.338*
	(0.499)	(0.161)	(0.545)	(0.176)
Experienced discrimination	1.427***	0.345***	1.552***	0.370***
	(0.280)	(0.079)	(0.302)	(0.088)
Housing satisfaction	-0.240***	-0.061**	-0.204**	-0.063**
	(0.091)	(0.028)	(0.098)	(0.032)
Country of origin (reference group: Afghanistan)				
Iraq	1.646	0.553	1.902	0.687
	(1.280)	(0.365)	(1.372)	(0.419)
Syria	1.318	0.386	1.274	0.515
	(0.983)	(0.307)	(1.022)	(0.348)
Iran	-0.195	0.088	1.053	0.521
	(3.023)	(1.028)	(3.523)	(1.222)
Mode of interview (reference group: CAWI - per e-mail)				
CAWI - Panel	-2.530***	-0.852**	-2.346**	-0.732**
	(0.928)	(0.353)	(1.038)	(0.373)
CASI/CAPI - at refugee facilities/centres	-2.015**	-0.330	-2.082**	-0.341
	(0.879)	(0.293)	(0.897)	(0.313)
CAWI - invitation per mail	0.504	-0.088	0.644	-0.091
	(1.361)	(0.348)	(1.406)	(0.368)
Constant	9.585***	-4.523***	9.751***	-4.948***
	(2.472)	(0.824)	(3.179)	(1.108)
Observations	794	792	691	687
R-squared	0.272	0.173	0.294	0.186
Province fixed effects	YES	YES	YES	YES

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Source: FIMAS+INTEGRATION, own calculations.

The only variable capturing some of the stress experienced when fleeing to Austria is the duration of migration from home to host country. However, in our regression analysis, it does not seem to explain

differences in mental distress levels; other factors seem to be more important. One may expect refugees' stress levels to decline after their arrival in Austria. However, our variable on the time passed since arrival in Austria (captured in months) does not reveal a clear relationship between distress levels and time of residence in the host country. As expected, the stress level of the small group of respondents (6% in the sample) that were still in the asylum application procedure was somewhat different. The uncertainty about their future results in a significantly higher risk for mental health problems.

Regarding family context, our results show that being in a partnership or having children does not significantly alter the level of distress. However, if family members have been left behind in the home or a foreign country, the worry about their safety significantly increases the risk of mental health problems. This is the case both for those who have a partner who does not live with them and for those who have children living elsewhere. If further close family members are living in the same household, people report a lower level of symptoms of distress.

In addition to good close relationships, the possibility to interact in the wider social sphere is also expected to reduce stress levels: Our social network variable shows that the larger the group of people in Austria refugees feel close to and are appreciated as important to them, the lower their level of mental distress. The variable on quality of relationships, i.e. having someone to talk to about personal problems, does not provide an additional significant explanation. One of the aspects of acculturative stress after having arrived in Austria is to be confronted with discrimination. The more frequent discrimination is experienced, the higher the level of distress for refugees.

Having a proper place to live has an important effect on individuals' well-being. Accordingly, the satisfaction with the housing situation in our data is significantly correlated with mental distress levels. Similarly, having the possibility to work is an important way to experience self-efficacy. Those who have a job or do voluntary work experience lower levels of mental distress.

Education is expected to be a protective factor for (mental) health in general since people with higher education levels might experience higher levels of self-affirmation and might pursue healthier life styles (Zajacova and Lawrence, 2018). However, our results are vice versa. This could be a result of the loss of status and the fear of non-recognition of qualifications when immigrating as a refugee, which might be more strongly perceived by highly educated people. Porter and Haslam (2005) found the same result in the literature on mental health of refugees.

Language proficiency was significantly associated with mental health: The higher the language skills (subjective assessment of reading and writing German), the lower the conditional level of distress of refugees. This shows that acculturative stress can be reduced if getting in contact with the host population is easier.

Finally, we applied controls for country of origin, province of residence and modes of interview. The first two are not significantly associated with mental distress. The mode of the interview, however, seems to have an influence on how severe symptoms of stress are reported by interviewees. Refugees interviewed via computer assisted self-administered interview (CASI) and those participating in a previous wave of the survey (FIMAS) stated lower levels of mental distress.

In order to test the robustness of our result we also estimated a logit regression Model [2] where we distinguish between those having no or a low level of distress on the one hand and those having a stress level that indicates a high probability of having a moderate or severe mental health problem on the other hand. The results in Table 2 are very similar to those of the regression Model [1]. However, the significance vanishes in the case of the following variables: ‘Living with further family members in the same household’ and ‘someone to talk to about personal problems’. The significance level of the variable ‘Working’ is substantially reduced.

As a further test for the robustness of the results, we performed both regression models restricted to those individuals that arrived in Austria over the shorter time span 2014-2018. The results of these Models [3] and [4] are very similar to those of the regression Models [1] and [2]. However, the significance vanishes in the case of the variable ‘Having a partner, who is living in home country or other foreign country’ and is reduced in the case of ‘Language proficiency’ and ‘Working’. The latter results seem to be driven by the fact that the share of respondents that have higher language proficiency or are already working is obviously lower in the group of more recently arrived refugees. The significance of the variable ‘Living with further family members’ however increases.

5. Summary and conclusions

This paper focuses on the mental health state of refugees having recently arrived in Austria, originating from Syria, Afghanistan, Iraq and Iran. We applied the Kessler index, which captures the level of non-specific psychological distress and thus the likelihood of serious mental health problems. Our set of variables is almost completely restricted to post-migration risk factors. Due to ethical considerations, no questions on potentially traumatic events before or during migration were included, as they would require a clinical context.

Based on survey data from 1,518 individuals we found that a high share of refugees (32%) state symptoms that suggest moderate or severe mental health problems. Psychotherapeutic treatment is recommended for these individuals. In severe cases, a combination with psychiatric treatment is needed. The descriptive results show a higher prevalence in the cases of younger persons, women, refugees from Iran and Syria and those individuals that arrived in Austria in 2015. However, in our multivariate analysis, only young refugees (15-34 years) show higher risk levels, while country of origin, gender and length of stay in the host country become insignificant. Investigating the effects of stressors on the mental health situation, we found a positive association with experienced discrimination in Austria, physical pain and the fear for partners and children left behind. On the other hand, the results show a negative correlation for a couple of mitigating factors that foster resilience, i.e. proficiency of the German language, being employed (including volunteer work), having more supportive relationships and satisfaction with the housing situation.

The high rates of mentally distressed persons found in our analysis may be surprising but is in line with other refugee surveys where the Kessler-10 scale was applied to measure mental distress. In Australia e.g., almost 2.400 recently arrived refugees were interviewed between 2013 and 2016 in the longitudinal survey ‘Building a New Life in Australia’ (De Maio et al, 2017). Between 31% and 46% of the refugee population showed moderate or severe mental health problems, whereas the rate in the general Australian population is 7% among men and 11% among women. The data also showed a high correlation between the level of mental distress and experienced traumatic events. Post-migration risk factors were found to explain part of the mental health problems experienced by refugees (Chen et al., 2017).

The prevalence of the mental health problems found in our analysis can be a serious barrier for the social and economic integration of the refugees having recently arrived in Austria. According to the German National Academy of Sciences Leopoldina (2018), refugees’ mental health problems can e.g. lead to "a high drop-out rate in language courses or the fact that many refugees cannot actively shape their everyday lives" (2018, p.8, own translation). In addition, psychological strain can pose a greater risk of dissocial, (auto) aggressive behaviour (Collier, 2014). Parental mental health problems also have a significant positive association with internalising and externalising behaviour problems in children (van Ee et al., 2016). Thus, adverse parenting styles including neglect and/or aggression can also lead to cycles of violence, intensified by epigenetic processes (Ullmann et al., 2018).

Therefore, in general barriers to health care access have to be lowered for refugees in Austria (Kohlenberger et al., 2019). In particular, sufficient financing of easily accessible psychosocial services, taking into account refugees' cultural backgrounds and specific needs (mother tongue therapists and interpreters), is necessary. Facilities and organisations offering such services exist, at least in most urban regions in Austria, e.g. Hemayat, SINTEM Caritas and others. Sustainable funding should be guaranteed since the services will be required on a long-term basis as our regression analysis shows that the length of stay in Austria does not reduce the level of mental distress.

Our regression analysis shows significantly higher risk for younger age groups (15-34 years) of experiencing mental distress than middle and older aged respondents (35-60 years). This constitutes a particular risk factor, since they are at the beginning of their life and career in Austria. Periods of inactivity in early phases of labour market careers have scarring effects (Marbach et al., 2018). Investments in tailored education and training measures are necessary, as are integrative leisure activities in order to prevent creating a lost generation.

Refugees in the asylum application procedure show elevated levels of mental distress. A reduction of the length of the asylum application procedure would help reduce the occurrence of mental health problems later on, triggered by long periods of chronic stress. Early access to the labour market is also effective in reducing mental distress but is currently highly restricted for asylum seekers. In general, early labour market access not only encourages self-efficacy and reduces the costs of public support for refugees (in Austria so-called "Grundversorgung"), but also has positive effects on the later careers of refugees. Furthermore, the recognition of qualifications and the improvement of skills (via training, etc.) reduce the loss of human capital, support general well-being and counteract the feeling of loss of status.

Family reunion and housing conditions that allow families to live together foster well-being and assist in adjusting to life in the host country. Language proficiency was found to be significantly related to stress levels. The financing of a sufficiently large number of language courses to facilitate interaction with the host population supports closer contact with the host society. There are a variety of routes to such closer contact: fostering inclusive housing, leisure activities or training measures.

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Appendix

Table A.3 / Sensitivity analysis of descriptive results for the sample used in the regression

i.e. for those respondents where information is available for all explanatory variables

		Subgroups, in %	K-10 score, mean value	moderate or severe mental health problems, in %
Total population			**20.9**	**31.4**
Gender				
	Men	83.3	20.1	30.7
	Women	**16.7**	**22.2**	**35.1**
Age group				
	15-24	**31.4**	**20.8**	**33.5**
	25-34	**41.0**	**21.0**	**34.8**
	35-44	18.7	18.7	22.0
	45-60	9.0	20.0	28.2
Country of origin				
	Afghanistan	21.7	20.2	30.0
	Iraq	**15.1**	**21.7**	**38.3**
	Syria	62.4	20.2	30.2
	Iran	0.9	18.7	28.6
Year of arrival				
	before 2014	13.2	20.1	29.1
	2014	17.7	20.2	30.0
	2015	**52.7**	**20.7**	**33.8**
	2016-2018	16.4	19.9	26.7

Source: FIMAS+INTEGRATION, own calculations, N = 794.

IMPRESSUM

Herausgeber, Verleger, Eigentümer und Hersteller:
Verein „Wiener Institut für Internationale Wirtschaftsvergleiche“ (wiiw),
Wien 6, Rahlgasse 3

ZVR-Zahl: 329995655

Postanschrift: A 1060 Wien, Rahlgasse 3, Tel: [+431] 533 66 10, Telefax: [+431] 533 66 10 50
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Offenlegung nach § 25 Mediengesetz: Medieninhaber (Verleger): Verein "Wiener Institut für Internationale Wirtschaftsvergleiche", A 1060 Wien, Rahlgasse 3. Vereinszweck: Analyse der wirtschaftlichen Entwicklung der zentral- und osteuropäischen Länder sowie anderer Transformationswirtschaften sowohl mittels empirischer als auch theoretischer Studien und ihre Veröffentlichung; Erbringung von Beratungsleistungen für Regierungs- und Verwaltungsstellen, Firmen und Institutionen.

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