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Waiting for kin: a longitudinal study of family reunification and refugee mental health in Germany

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ABSTRACT

Involuntarily or planned – many refugees flee their home country alone, leave behind spouses and children but also siblings, parents and other family members they otherwise care for. Reunification in hosting communities is difficult, as governments limit institutional family reunifications and the individual journey of kin is dangerous and often illegal. Having family abroad is mentally distressing for refugees, as kin might not live in safety. Additionally, reuniting with family members can be a source of support in the new environment. Grounded in theories of mental distress and social support, this analysis investigates the association between family reunifications and refugee mental health in a random sample of refugees in Germany ($N = 6610$), the IAB-BAMF-SOEP Survey of Refugees 2016–2018. By means of panel fixed-effect regression analysis, we observe institutionally sponsored but also individual moves of other family members. The study finds that family reunification has a positive association with refugee mental health, though not at an equally increasing rate for each additional member of the family. Gender differences show in the size of association, yet significant heterogeneous associations between refugee men and women cannot be observed. Finally, the associations are larger when only observing reunifications with the nuclear family.

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Introduction

Family unity is enshrined in various human rights laws. Still, it has been subject to debates, resulting from the large influx of refugees to Europe in 2015. Public attention often rests with the costs of offering refuge and to extend it to family members (von Hermanni and Neumann 2019). The discourse frequently results in restricted family reunification policies for refugees, with a punitive character for those seeking asylum (Bélanger and Candiz 2019). Germany, for instance, has suspended family reunification for individuals with subsidiary refugee protection from 2016 to 2018 and restricted it by quota from 2018 onwards. Some countries like Canada or Australia provide resettlement programs

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in which entire families can seek asylum. However, capacities are limited. Hence, seeking asylum outside of resettlement programs is more common but frequently leads to one family member migrating first (Kraus, Sauer, and Wenzel 2019). Family reunification at a later point becomes difficult to realise. Besides applying for institutionally assisted family reunification, a second means to reunite with the family is to join others in a host country and apply for asylum on own initiative. Recent research points towards increased mental strain as a result of prolonged family separation (Löbel 2020). However, there is no empirical work on the question of whether family reunification can improve the mental health of refugees.¹

Building on the notion of family as a social resource, we fill this gap by estimating the association of reuniting with family members in the host community on the mental health of refugees. Previous research indicates that the existence of a nuclear family² promotes mental health of this vulnerable group (Beiser and Hou 2017; Löbel 2020). In turn, good mental health has been identified as one crucial factor for other refugee integration trajectories (Ager and Strang 2008; Berry 1998). At the same time, family separation is one of the most obvious stressors to refugees' mental health (Löbel 2020; Nickerson et al. 2010). Separation takes place involuntarily during evacuation or occurs premeditated to increase successful resettlement by sending the most agile and strongest person. Therefore, the act of leaving behind family in the case of refugee migration differs from other migrants (Honohan 2009). Moreover, not only are refugees arriving in the host country more vulnerable than other migrants who entered the country with a valid residence permit. Those arriving need additional resources and care (Ryan, Dooley, and Benson 2008), which family members can provide.

Investigating changes in mental health of refugees over time, we employ data of the IAB-BAMF-SOEP Survey or Refugees. This nationwide random sample of asylum seeker and refugees in Germany comprises refugees who immigrated during the years 2013–2016. The analysis looks at family reunification through legal channels and through individual effort to have other family members move to the same destination. By means of fixed-effects regression analyses with data from 2016–2018 ($N = 6610$), we show family reunification with members of the (nuclear) family has a significant and positive association with refugee mental health, though not at an equally increasing rate per reunification. Our analyses suggest that women as well as men profit from family reunification. Our research has important implications for research and policymaking. From a research perspective, we highlight the need to investigate the resource mobilisation of refugees, seeing vulnerable groups as active agents who make use of social resources when being equipped with them. Second, we particularly address gender differences in refugee integration trajectories, a dimension often neglected though having a large impact on how to increase livelihoods of this vulnerable group in practice.

Refugee mental health – the role of pre-, peri- and post-migration stressors

Experiences of forced migration leave many refugees with mental health impairments. Accordingly, refugees suffer from languishing mental health to a higher extent than members of the host society (Fazel, Wheeler, and Danesh 2005; Lindert et al. 2009). This is also true in the German context where mental health of refugees is persistently lower than in the host population, though slowly increasing over time (Brücker et al.

2019; Metzging, Schacht, and Scherz 2020). The finding comes as no surprise, considering the resource loss refugees endure before, during and after their resettlement (Ryan, Dooley, and Benson 2008). This vulnerability reproduces also in other integration trajectories, showing that mental health is for instance an important mediator for finding employment among refugees (Bakker, Dagevos, and Engbersen 2014).

Most prominently, psychiatric studies track prevalence rates of mental health issues among refugees as well as their determinants. This research tradition has placed an emphasis on the precarious situation in the countries of origin and pre-migration stressors such as undue detention and torture (Steel et al., 2009, 2006). Pre-migration trauma inflicted through exposure to war and torture persists over time and affects the long-term mental health of refugees (Steel et al., 2009, 2006). Additionally, there is another angle in refugee mental health research, focusing on the pressing needs of refugees in transit and in host communities (Beiser and Hou 2017; Heptinstall, Taylor, and Sethna 2004; Lau et al. 2018; Li, Liddell, and Nickerson 2016; Nickerson et al. 2010; Ryan, Dooley, and Benson 2008; Steel et al. 2002; Walther, Fuchs, et al. 2020; Walther et al. 2019). These studies analyse post-migration stressors and living difficulties that add to the already stressing situation preceding migration. As an example, studies find that living in shared accommodation and having an unsafe asylum status affects refugee mental health negatively (Walther, Fuchs, et al. 2020).

One development on the crossroads of sociology and health research should receive increased scientific attention: the discussion on how resources aid integration and particularly mental health outcomes of refugees. Ryan, Dooley and Benson have sensitised for the potential resources refugees have following resettlement (Ryan, Dooley, and Benson 2008). Based on Hobfoll's conservation of resource theory (Hobfoll 2001), the authors discuss how resources are accessible and inaccessible to refugees in the aftermath of migration. Either inaccessibility is self-inflicted through believes or individual vulnerabilities hinder access. Inaccessibility is also the outcome of environmental factors such as institutional barriers. In our analysis, we focus particularly on one resource that is potentially available to refugees: kin. Even if refugee families separate, there is the possibility to reunite as enshrined in human rights law.

Article 16 of the Universal Declaration of Human Rights first laid down family unity as a human right. Since then other legal instruments have also recognised this right (see Appendix, section 1.1). Derived from this assertion of the right to family unity, the 1951 Convention Relating to the Status of Refugees equally confirmed family unity for refugees. Family unity entails two obligations for nation states. First, states should refrain from any action that separates families. Second, states must take measures as to ensure separated families can reunite. Therefore, states generally have mechanisms in place to reunite refugees with family members, in work-related situations but also in the case of refuge (see Appendix, section 1.3). Nevertheless, not only laws govern family reunification opportunities for refugees. Many reunifications are the consequence of individual effort of family members to seek asylum in the same country as other family members. The act of family reunification from a holistic perspective is thus not bound to the act of resettlement but entails all means of moving to the same country as other family members. Hence, this analysis does not limit itself to count family reunifications of refugees taken by means of official resettlement. The analysis correspondingly also includes family reunifications who come about by having family members move to the same country by means of own planning and ability.

Overcoming mental health languishing: family as social resource

The human right of family unity indirectly underscores that the family is a potential social resource. Kinship networks not only provide affirmation of the self but offer an identity as well as tangible support (Agneessens, Waeye, and Lievens 2006; Bilecen and Cardona 2018; Sapin, Widmer, and Iglesias 2016; Thoits 2011). This support among refugees and particularly the family is necessary to appraise acculturative stress. Qualitative interviews provide insights on the aftermath of forced resettlement: children provide care for their elderly parents (Busch Nsonwu et al. 2013) and a sense of duty and purpose to build a new life (Weine et al. 2004). Partners, siblings and other family members support one another on a range of occasions such as finding employment, understanding the tasks to structure life and to enjoy leisure time (Boyd 1989). In the context of refugee migration, family facilitates the capability to engage in the new environment (Goodson and Phillimore 2008; Honohan 2009). At the same time, family at least in the beginning of a stressful situation, helps avoiding social isolation (Honohan 2009). Particularly when family members have experienced similar atrocities, they can associate with the painful experience of other family members and provide tailored guidance to alleviate stress (Thoits 2011). The bonds to family members hence create trust in the new environment (Strang and Quinn 2019). From social network theory we know the larger the support network of particularly the family, the more potential resources exist (Thoits 2011), with positive implications for refugee mental health (Löbel 2020). Saying this, family separation affects refugee mental health negatively in the aftermath of resettlement. Particularly separation from the nuclear family poses a threat to refugee mental health (Löbel 2020).

Besides the supportive aspect of the family, another facet is important when analysing the potential benefits of family reunification after refuge. Family members left behind remain in war zones or in transit, a dangerous situation that those living in a safe environment must endure. Hence, refugees commonly report fear for their family living abroad (Choummanivong, Poole, and Cooper 2014; Nickerson et al. 2010), a determinant for their mental health languishing in host communities. Bringing family members into the host country of residence can alleviate refugees already residing in safety from the stress of thinking about family members being in danger. Many refugees aim and plan for reunifying with family members in the host community.

Referring to the discussed literature, we see two arguments for an association between family reunification and refugee mental health. First, refugees who seek to reunite with their family often must fear for the family left behind. This fear will not stop, if only one of multiple family members successfully relocates. Additionally, regarding the argument of potential support within social network structures, the size of the reunited family support network is presumably crucial as well. Thus, taking these considerations together leads us to the following hypotheses:

H1: Reunifying refugees who already reside in a host country with members of the nuclear family from abroad has a positive influence on their mental health. This association increases with additional family members who move to the same country.

The distinction between nuclear and non-nuclear family is important to gain insights on whether family reunification as such or only the reunification with close family

members unfolds social support and a reduced fear of danger. Hence, we differentiate between reunifications with the nuclear family and reunifications including other family members, in case of this analysis to siblings as refugees in the sample provide information on their move:

H2: The association between family reunification and refugee mental health is not as pronounced when including siblings in the group of reunifying individuals, given the prime importance of the nuclear family.

The vulnerability of female refugees

It is worth looking into gendered vulnerabilities and resource mobilisation. First, gender-based violence and sexual violence are a risk that women are more likely to endure during conflict compared to men (Nawyn, Reosti, and Gjokaj 2009). In many ways, it is a tool of war which has been repeatedly used in the contexts of colonialisation and genocide (Burnett and Peel 2001). Such vulnerability increases the risk of languishing mental health in female refugees (Walther, Fuchs, et al. 2020). Second, refugee women often experience inequalities in other domains of daily life that lie outside of the horrors of war and persecution. Research has shown that female refugees are less educated than their male counterparts and are less likely to have gainful employment prior to refuge (Burnett and Peel 2001).

These constrains in capability also express themselves as inequalities in the host community. Female refugees report lower language proficiency (Beiser and Hou 2017; Cheung and Phillimore 2017), a challenge derived from gendered education deficits in the home country but also gender-based care duties that persist in the host communities (Lenette, Brough, and Cox 2013). Even when female refugees participate in language training and qualifying educational measures in the new environment, they still do not find their way into gainful employment as often as male refugees (Cheung and Phillimore 2017). Across the EU, in 2014, only 45% of refugee women were in employment, well below the outcomes of both other immigrant women and refugee men (Dumont et al. 2016). Also in Germany, data shows that refugee women have a much lower probability to move into gainful employment, amounting to a gap of 10 percentage points compared to male refugees (Jacobsen, Krieger, and Legewie 2020). With this burden, they are in particularly need for other family members to take care of financial matters and administrative choices. Moreover, female refugees as part of religious practices are often fulfilling the traditional role of the caregiver within the home and are less likely to culturally adapt to host community customs (Ozyurt 2013). The cultural background also explains non-take up of employment in the host-communities, most likely because of family-oriented lifestyles already present in the home countries of the refugees (Bakker, Dagevos, and Engbersen 2017). All in all, being left alone with childcare responsibilities and the inability to access knowledge in the languages needed, women are less likely to seek help in accessing resources needed for further integration and well-being (Goodson and Phillimore 2008). The lack of resources outside the family might be compensated by social resources within the family.

Qualitative studies provide first insight into the correlation family reunification has on female refugees compared to male refugees (Wachter et al. 2016). In general, the family

unit serves as a prominent source of social support. While refugee men are more likely to develop social networks around employment and access further resources through these networks, female refugees look for resources in their vicinity, in schools and at home (Goodson and Phillimore 2008). Given that female refugees not only connect with different networks than men, for instance rather in the private than in the public sphere, this also has consequences for the resources they have access to post-migration (Cheung and Phillimore 2013). Hence, women who migrate alone to seek refuge have fewer personal resources to start with and profit more from family reunification than men, also in terms of mental health. A lack of social resources has already shown to have a detrimental influence on refugee women's mental health (Porter and Haslam 2005). Hence, we hypothesise

H3: The positive association of family reunification and mental health is larger for female refugees compared to male refugees.

Methodology

Data

We employ data from the German IAB-BAMF-SOEP Survey of Refugees, a panel study of individuals who applied for asylum in Germany between 2013 and 2016 (Kühne, Jacobsen, and Kroh 2019). The panel study is integrated in the German Socio-Economic Panel (SOEP) – a running panel study of households in Germany since 1984 (Goebel et al. 2019, 10.5684/soep-core.v35) . We work with the first three survey years 2016–2018. The sampling of the survey followed a multi-stage disproportional stratified sampling. It ensures a large enough coverage of female refugees, the elderly and refugee families amid the large influx of young male refugees. The first wave response rate amounts to roughly 50%, whereas panel retention between each consecutive wave is about 66% each year. All interviews make use of CAPI mode. Questionnaires are available in German, English, Urdu, Farsi/Dari, Arabic, Pashto and Kurmanji (Jacobsen 2019).

Variables

Dependent variable – Refugees' mental health is measured with the Short Form Health Survey (SF-12) and the derived Mental Health Component Summary Scale (MCS) in the SOEP (Ware, Kosinski, and Keller 1996). The SOEP provides the MCS as part of the health-related generated variables. Its scale ranges from 0–100, a continuum from mental health languishing to flourishing, and its mean represents the average mental health of the German population in 2004 (Andersen et al. 2007; Tibubos and Kröger 2020). The item inventory used to derive the MCS refers to symptoms known from depressiveness and anxiety, additionally to social deficiencies from mental health problems. The MCS is surveyed every second year and at the first interview when becoming a SOEP participant. This cycle has implications for the frequency of the MCS being available for analysis. The outcome is available in every respondents' year of the first interview and in 2018. Thus, for respondents of the initial survey, the MCS is available in 2016 and 2018. For respondents, who entered the survey in 2017 the MCS is available in the years 2017 and 2018 (Appendix Table A4).

Independent Variables – We measure the association family reunification has on refugee mental health discretely as the number of reunifications having taken place. One specification entails the sum of nuclear family (partner, spouse and children only) and another a variation further includes siblings. In order to identify non-linear associations, the squared term of the variables is employed as well.

For both measures, we use the information on family reunification of partners, spouses, siblings, and children provided in the 2018 IAB-BAMF-SOEP Survey of Refugees.³ This definition of family reunification only entails that members have moved to Germany and not necessarily into the household. In 2018, respondents provide details on the family members who moved to Germany after respondents arrived themselves. Information includes the month and the year of each family member moving. In a couple of cases, migration information on month-level is missing ($N=123$). In those instances, we chose to impute the month randomly because we have no indication that the missing month (when year is available) correlates with our outcome variable or the independent variables.

Control variables – As the SOEP provides information on family reunifications before first interview, we control for the time from the first reunification to the time respondents report the MCS for the first time. The information accounts for a potential decreasing association of family reunification on mental health over time. Those, who never experience family reunification or only experience it after the first interview in the survey, receive a 0 on this control variable. Other than that, the models also control for time-varying and refugee-specific factors equally confounding refugee mental health and family reunification. We first include information on the housing arrangements (0 = private accommodation, 1 = shared accommodation), as a post-migration stressor in form of insufficient housing (Walther, Kröger, et al. 2020). Second, we include language proficiency (a categorical variable across speaking, reading and writing German: 1 = no or little knowledge, 2 = some knowledge 3 = good as well as very good knowledge) to account for limited help-seeking behaviour following German language insufficiency (Kang et al. 2010). Having employment alleviates the mental strain of lacking sufficient financial resources, a known correlate of mental health languishing (Bartley 1994; McKee-Ryan et al. 2005; Ryan, Dooley, and Benson 2008). Hence, models control for employment, including apprenticeships and traineeships (0 = not employed, 1 = employed). The next three variables control for other social resources next to the bonding family network of refugees, in their supportive role for mental health (Kawachi and Berkman 2001; Thoits 2011). We control for the social support as the frequency with which refugees meet individuals holding the same nationality as well as with German nationals (1 = never, 2 = seldom, 3 = regularly, 4 = often). For the same reason, we control for the absolute number of people with a migration background in zip code 8 area (PLZ8, close neighbourhood) provided by the enterprise MICROM. This data can be linked to the SOEP (for an overview see Goebel et al. 2014). Sixth, knowing about the potential confounding of physical and mental health (Ohrnberger, Fichera, and Sutton 2017), the physical health component summary scale (PCS) is part of the model specification, measuring physical health on a scale from 1 to 100. Seventh, in order to control for the institutional knowledge refugees gain over the years and serving as a proxy for access to support as well, we include a variable showing participation across a range of integration courses, coded as a dummy variable

(0 = no participation, 1 = participation). Last, we summarise asylum status (1 = in process, 2 = accepted meaning 1–3 years residence title, 3 = rejected, including ban on deportation), another strain in the aftermath of resettlement (Steel et al. 2006).⁴

For descriptive purposes, we also present the countries of origin, age in categories, gender, family status, having children and education – all time invariant or relatively stable over time and not included in the regression analysis. Countries of origin are categorised (1 = Syria, 2 = Iraq, 3 = Afghanistan, 4 = Iran / Pakistan, 5 = Eritrea / Somalia, 6 = others). The age information is grouped (1 = age 18–25, 2 = age 26–35, 3 = age 36–45 and 4 = age +46). We provide information on being married (0 = single, 1 = in partnership) and having children (0 = no children, 1 = children). Gender is a binary variable (0 = male and 1 = female). The International Standard Classification of Education (ISCED) presents education attainment (1 = primary education attainment which includes also having no education certificate yet, 2 = secondary education attained, 3 = tertiary education attained).

Sample specification

We consider survey years 2016–2018 for analysis, enclosing $N = 14,363$ person-years. Table 1 summarises the sample restrictions applied. As these person-years also include individuals who only participate once, we drop these cases for our fixed-effect regression analysis (retained $N = 11,131$). Further, we exclude individuals with missing values on our dependent variable (retained $N = 8182$). We equally apply listwise deletion in the independent variables of interest (retained $N = 8114$). Further, given that we observe the MCS only twice per person across three years, this diminishes the sample size. Respondents as part of the survey in 2016 have three person years, with no measurement of the MCS in 2017. This leads to the exclusion of their second person-year (retained $N = 6610$). As a robustness check, one sample specification restricts to those having a nuclear family to reunite with (retained $N = 5118$).

Analytic strategy

We use a fixed-effects regression analysis with time and person fixed-effects. The analysis relates changes in mental health to the changes in time-varying covariates. Such a fixed-effects model denotes a function of

$$Y_{it} = \beta_1 reunification_{it} + \beta_2 x_{2it} \dots \beta_k x_{kit} + a_i + d_t + \varepsilon_{it},$$

Table 1. Sample restrictions.

	Retained N for all three survey years jointly
Initial sample size IAB-BAMF-SOEP Survey of Refugees 2016, 2017, 2018	14,363
After deletion of individuals with only one survey answered	11,131
After deletion of individuals with missing values in dependent variable at least once (MCS)	8182
After deletion of individuals with missing values in independent variables at least once	8114
After deletion of individual years where no MCS was surveyed – Final unrestricted model	6610
After deletion of individuals who do not have a nuclear family, including adult children – Final restricted model	5118

where Y_{it} represents the estimated MCS for individual (i) at a certain time point (t), β_1 the association of family reunification with the MCS, β_2, \dots, β_k the coefficients for the covariates, a_i the individual and d_t the time fixed-effects. ε_{it} is the error term.

Through demeaning with person-specific means, time constant error terms fall away and leave a within-estimator, providing the association between changes in the independent and dependent variable. The models account for time constant (unobserved) heterogeneity, such as family composition, ability and motivation to reunite with family. This circumstance for instance also accounts for family status at time of arriving in Germany. Hence, the disproportionate sampling design of the IAB-BAMF-SOEP Survey of Refugees, amongst others overrepresenting families by oversampling children, is unlikely to bias our results. The sampling strategy entailed time constant variables only (gender, country of origin, age at the time of sampling and residence status at the time of sampling; Kroh et al. 2017).

Analysis

Descriptive statistics

Descriptive statistics in Table 2 provide information about who realises family reunification in Germany within the group of recently arrived refugees (for a decomposition by gender, see Appendix Table A1). The population of refugees in Germany is relatively young. Refugees naturally experience family reunification much more often at an older age: 33% of individuals between 26 and 35 having experienced family reunification compared to 12% in the group of younger refugees with age 18–25. Individuals who are married (89% of reunified individuals) and individuals with children (77% of reunified individuals) more often report reunification with kin. Moreover, men more often realise family reunification compared to women (58% of men vs. 42% of women). In total, 74% of individuals in the sample reunifying with family members are Syrian; 85% of refugees reporting family reunification are recognised as refugees, an indicator that from an institutional perspective these individuals have a higher chance to realise reunification with the help of the government. Overall, about 18% of the sample population have experience family reunification before the first interview, almost 7% experience it after the first interview (Appendix Table A2).

Main findings

Models 1, 2 and 3 in Table 3 show the results of fixed-effect regression models. Mental health of refugees is regressed on time-varying post-migration integration factors of refugees, including the number of family members an individual reunified with. Particularly, Model 3 excludes refugees without a nuclear family or a life partner to reunite with, serving as a robustness check. It shows that the associations presented in Model 2 are not driven by single male refugees who might have different mental health outcomes.

Model 1 shows the association of an increase in the number of family members moving to Germany on refugee mental health, with no further sample restrictions applying. The count of family reunifications includes siblings. The results show a non-significant association at any conventional significance level with a coefficient of 1.86 and standard error of 1.17.

Table 2. Descriptive statistics of refugees who have and have not experienced family reunification (including siblings) across all survey years – means and standard errors in parentheses.

Variable	No experience of family reunification	Experience of family reunification (incl. siblings)	Difference
MCS	48.214 (11.673)	49.506 (11.166)	1.292*** (0.339)
<i>Gender</i>			
Male	0.635 (0.481)	0.580 (0.494)	-0.055*** (0.014)
Female	0.365 (0.481)	0.420 (0.494)	0.055*** (0.014)
Time from first reunification to first interview (in months)	0.000 (0.000)	29.869 (26.997)	29.869*** (0.378)
<i>Age</i>			
18–25 years	0.267 (0.442)	0.121 (0.327)	-0.146*** (0.012)
26–35 years	0.351 (0.477)	0.341 (0.474)	-0.010 (0.014)
36–45 years	0.243 (0.429)	0.331 (0.471)	0.089*** (0.013)
46+ years	0.140 (0.347)	0.207 (0.405)	0.067*** (0.011)
<i>Country of Origin</i>			
Syria	0.530 (0.499)	0.737 (0.440)	0.206*** (0.014)
Iraq	0.128 (0.335)	0.121 (0.326)	-0.008 (0.010)
Afghanistan	0.131 (0.338)	0.048 (0.213)	-0.084*** (0.009)
Iran/Pakistan	0.051 (0.219)	0.017 (0.128)	-0.034*** (0.006)
Eritrea/Somalia	0.061 (0.240)	0.032 (0.177)	-0.029*** (0.007)
Serbia/Albania/Kosovo	0.012 (0.108)	0.005 (0.073)	-0.006** (0.003)
Others	0.086 (0.280)	0.040 (0.197)	-0.046*** (0.008)
Year of immigration	2,014.832 (1.058)	2,014.801 (1.373)	-0.031 (0.033)
<i>Education</i>			
Primary education	0.382 (0.486)	0.341 (0.474)	-0.041*** (0.014)
Secondary education	0.390 (0.488)	0.394 (0.489)	0.004 (0.014)
Tertiary education	0.175 (0.380)	0.201 (0.401)	0.026** (0.011)
Education – missing values	0.053 (0.224)	0.064 (0.245)	0.011* (0.007)
<i>Family status</i>			
Single	0.385 (0.487)	0.107 (0.309)	-0.279*** (0.013)
Married	0.612 (0.487)	0.891 (0.312)	0.278*** (0.013)
Family status – missing values	0.002 (0.048)	0.003 (0.051)	0.000 (0.001)
<i>Children</i>			
No kids	0.449 (0.497)	0.232 (0.422)	-0.217*** (0.014)
Kids	0.551 (0.497)	0.768 (0.422)	0.217*** (0.014)
<i>Employment</i>			
Not employed	0.808	0.832	0.024**

(Continued)

Table 2. Continued.

Variable	No experience of family reunification	Experience of family reunification (incl. siblings)	Difference
	(0.394)	(0.374)	(0.011)
Employed	0.192	0.168	-0.024**
	(0.394)	(0.374)	(0.011)
<i>Accommodation</i>			
Private accommodation	0.718	0.867	0.148***
	(0.450)	(0.340)	(0.013)
Public accommodation	0.282	0.133	-0.148***
	(0.450)	(0.340)	(0.013)
<i>Asylum status</i>			
In process	0.211	0.123	-0.088***
	(0.408)	(0.328)	(0.011)
Recognised	0.734	0.852	0.118***
	(0.442)	(0.356)	(0.012)
Rejected	0.056	0.026	-0.030***
	(0.230)	(0.159)	(0.006)
<i>German language skills</i>			
Low	0.359	0.361	0.002
	(0.480)	(0.480)	(0.014)
Medium	0.342	0.353	0.011
	(0.475)	(0.478)	(0.014)
High	0.299	0.286	-0.013
	(0.458)	(0.452)	(0.013)
<i>Meeting people with same nationality</i>			
Never	0.112	0.113	0.001
	(0.315)	(0.316)	(0.009)
Seldom	0.234	0.254	0.020
	(0.423)	(0.435)	(0.012)
Regularly	0.222	0.266	0.045***
	(0.415)	(0.442)	(0.012)
Often	0.432	0.367	-0.065***
	(0.495)	(0.482)	(0.014)
<i>Meeting German nationals</i>			
Never	0.212	0.209	-0.002
	(0.408)	(0.407)	(0.012)
Seldom	0.210	0.256	0.047***
	(0.407)	(0.437)	(0.012)
Regularly	0.157	0.164	0.008
	(0.363)	(0.371)	(0.011)
Often	0.422	0.370	-0.052***
	(0.494)	(0.483)	(0.014)
<i>Integration course</i>			
No	0.345	0.340	-0.005
	(0.475)	(0.474)	(0.014)
Yes	0.655	0.660	0.005
	(0.475)	(0.474)	(0.014)
PCS	53.227	52.046	-1.181***
	(10.078)	(10.106)	(0.296)
Number of individuals with a migrations background in neighbourhood	192.382	193.109	0.727
	(158.304)	(154.074)	(4.611)
Observations	5,101	1,509	6,610

Model 2 uses the same unrestricted model and regresses mental health on a discrete variable of family reunification, only counting members of the nuclear family. The association is significant and initially large with an increase in MCS of 2.82 for one reunification taking place and an increase in MCS by 3.78 points with a second reunification taking place, considering the non-linearity of the association. To derive the association for each additional

Table 3. Unstandardised coefficients and standard errors of the association of family reunification on refugee mental health.

	Model 1 (full sample)	Model 2 (full sample)	Model 3 (restricted sample)
Number of reunifications with family, incl. siblings	1.86 (1.17)	–	–
Number of reunifications with family, incl. siblings – squared	–0.14 (0.32)	–	–
Time from interview until first reunification (incl. siblings)	–0.06 (0.05)	–	–
Time from interview until first reunification – squared (incl. siblings)	0.00 (0.00)	–	–
Number of reunifications with family, excl. siblings	–	3.75*** (1.32)	3.83*** (1.37)
Number of reunifications with family, excl. siblings – squared	–	–0.93** (0.41)	–0.97** (0.41)
Time from interview until first reunification (excl. siblings)	–	–0.07 (0.05)	–0.09* (0.05)
Time from interview until first reunification – squared (excl. siblings)	–	0.00 (0.00)	0.00 (0.00)
<i>Employment (Ref. unemployed)</i>			
Employed	0.14 (0.56)	0.13 (0.56)	–0.65 (0.71)
<i>Housing (Ref. private)</i>			
Shared accommodation	–1.45** (0.58)	–1.40** (0.58)	–2.21*** (0.70)
<i>Asylum status (Ref. in process)</i>			
Asylum status-accepted	0.75 (0.65)	0.72 (0.65)	0.69 (0.75)
Asylum status-rejected	–0.38 (1.01)	–0.38 (1.01)	0.83 (1.23)
<i>German knowledge (Ref. no knowledge)</i>			
Some knowledge in German	–0.11 (0.51)	–0.11 (0.51)	0.07 (0.57)
Good knowledge in German	0.45 (0.66)	0.46 (0.66)	0.78 (0.76)
<i>Meeting people of the same nationality (Ref. never)</i>			
Seldom	–0.26 (0.66)	–0.25 (0.66)	0.02 (0.71)
Regularly	–0.67 (0.68)	–0.65 (0.68)	–0.56 (0.74)
Often	–1.03 (0.67)	–1.00 (0.67)	–0.58 (0.74)
<i>Meeting people of German nationality (Ref. never)</i>			
Seldom	0.39 (0.59)	0.38 (0.59)	0.57 (0.68)
Regularly	0.85 (0.65)	0.82 (0.65)	0.58 (0.73)
Often	1.89*** (0.60)	1.89*** (0.60)	1.88*** (0.69)
PCS	–0.27*** (0.03)	–0.27*** (0.03)	–0.26*** (0.03)
<i>Integration course (Ref. no)</i>			
Integration course	0.21 (0.41)	0.22 (0.41)	0.11 (0.49)
Number of migrants in neighbourhood	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<i>Survey year (ref. 2016)</i>			
2017	–0.50 (0.51)	–0.48 (0.51)	–0.11 (0.60)
2018	–0.01 (0.44)	0.03 (0.42)	0.51 (0.49)

(Continued)

Table 3. Continued.

	Model 1 (full sample)	Model 2 (full sample)	Model 3 (restricted sample)
_cons	61.16*** (1.68)	61.23*** (1.67)	60.56*** (1.85)
N	6610.00	6610.00	5118.00
Within subject standard deviation	9.81	9.81	9.80
Rho	0.49	0.49	0.50
R ² – within	0.05	0.05	0.06
N of people at risk (number of family reunifications in the sample)	0 = 5,101 1 = 902 2 = 432 3 = 83 4 = 50 5+ = 42	0 = 5,437 1 = 783 2 = 356 3 = 15 4 = 8 5+ = 19	0 = 3,945 1 = 783 2 = 356 3 = 15 4 = 8 5+ = 11

Standard errors in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

reunification, insert the coefficients in the denoted formula above. The association decreases to 2.88 in size for the third reunification onwards. The same applies to model 3. Saying this, the data only partially support hypothesis 1. Family reunification as an event is positively and significantly associated with refugee mental health. The non-linearity of the association points towards the conclusion that not each additional incident of family reunification at the same place of residence is equally associated with an increase in mental health outcome. Moreover, we accept hypothesis 2 stating that the association of family reunification on refugee mental health is smaller when accounting for extended family reunification, in form of siblings.

Heterogeneous association – gender

Table 4 displays gender-specific associations between family members reuniting in Germany and refugee mental health. The first two gendered regression models are not restricted and include siblings in the family reunification count (Model 1 and Model 2). The other four models exclude siblings from the count. Models 5 and 6 restrict the sample towards refugees that have a nuclear family.

Accounting for reunifications including siblings, both associations with refugee mental health for men and women are insignificant (Models 1–2). At the same time, the within-group mean difference for both men and women increase for reunifications with the nuclear family (Models 3–6). Particularly men show a significant positive association between nuclear family reunification and mental health – even when restricting the model to respondents that are eligible for institutional family reunification. In congruence with the models in Table 3, the data does not support the hypothesis that an increase in family members reuniting is associated with an increase in mental health for each additional person, given the non-linearity of the association. Yet, experiencing the event once or twice has an increasingly positive correlation with refugee mental health. The difference in significance level of the coefficients between women and men might result from the limited number of reunifications in the group of female refugees (for the tabulation of reunifications see last rows in Table 4), particularly in the tails of the distribution. Overall, refugee women are more often married and have children (Appendix Table A1). Yet, they also more often arrive jointly in a host country and

Table 4. Unstandardised coefficients and standard errors of the association of family reunification on refugee mental health, by gender.

	Model 1 – Male (full sample)	Model 2 – Female (full sample)	Model 3 – Male (full sample)	Model 4 – Female (full sample)	Model 5 – Male (restricted sample)	Model 6 – Female (restricted sample)
Number of reunifications with family, incl. siblings	1.61 (1.28)	3.54 (2.32)	–	–	–	–
Number of reunifications with family, incl. siblings – squared	–0.26 (0.31)	0.43 (0.57)	–	–	–	–
Number of reunifications with family, excl. siblings	–	–	3.78** (1.47)	5.36* (2.97)	3.94** (1.56)	5.08* (3.03)
Number of reunifications with family, excl. siblings – squared	–	–	–1.08** (0.46)	–0.66 (0.65)	–1.15** (0.49)	–0.61 (0.65)
_cons	65.69*** (2.34)	54.73*** (2.47)	65.65*** (2.32)	54.84*** (2.43)	65.55*** (2.69)	54.66*** (2.56)
N	4114.00	2496.00	4114.00	2496.00	2906.00	2212.00
Within subject standard deviation	9.76	9.83	9.75	9.85	9.81	9.70
Rho	0.47	0.55	0.48	0.54	0.49	0.54
R ² – within	0.07	0.05	0.07	0.04	0.08	0.04
RMSE	6.86	6.89	6.85	6.91	6.64	6.73
N of people at risk (number of family reunifications in the sample)	0 = 3,239 1 = 411 2 = 335 3 = 61 4 = 39 5+ = 29	0 = 1,862 1 = 491 2 = 97 3 = 22 4 = 11 5+ = 13	0 = 3,432 1 = 350 2 = 308 3 = 9 4 = 6 5+ = 9	0 = 2,005 1 = 433 2 = 48 3 = 6 4 = 2 5+ = 2	0 = 2,224 1 = 350 2 = 308 3 = 9 4 = 6 5+ = 9	0 = 1,721 1 = 433 2 = 48 3 = 6 4 = 2 5+ = 2

Notes: Standard errors in parentheses. * $p < .1$, ** $p < .05$, *** $p < .01$. Control variables include: employment status, type of housing, asylum status, knowledge of the German language, meeting people of the same nationality and meeting people of German nationality as well as time from interview to first reunification, time from interview to first reunification squared, PCS, participation in integration courses, number of individuals with a migration background in the area and survey year. Models 1 and 2 are full models, Model 3 is restricted to refugees that have a nuclear family.

hence do not have the same potential for reunification compared to men. The coefficients for the variables of interest are large for women, particularly for the first and second family reunification taking place. Yet, the large standard errors point towards the larger uncertainty in this group under analysis, due to comparably small variance in the number of reunifications.

In order to identify whether the association for women is stronger than for men (as stated in hypothesis 3), we study whether the models hold the same explanatory power. Because the models are not nested, confidence intervals cannot be interpreted between models. The calculation of the root mean squared error (RMSE, see Table 4), equal in size across the gendered models, indicates similar explanatory power across gender. We additionally estimate the kernel density for the estimated MCS for each family reunification for men and women separately in order to determine whether our models predict higher MCS for women compared to men. As Figures A1–A3 in the Appendix indicate that the models predict a higher MCS for refugee women, although only for a small proportion of the sample. Saying this, the analysis is inconclusive about the gendered associations of family reunification on mental health (hypothesis 3). On the one hand, the coefficients are larger for women across all analysis (albeit not significant in Model 6). On the other hand, comparing the kernel density plots, it becomes evident that the distributions of estimated MCS are similar and the higher mean association of women is likely due to a couple of individuals experiencing extreme increases in mental health after reunification.

We perform additional analyses to corroborate the robustness of our findings in terms of self-selection and size of the family living abroad (see Appendix Tables A6–A8). First, the panel fixed-effects regression does not allow for a strict causal interpretation of results. We provide a robustness check that only estimates the relative change in MCS over time. This set up utilises much fewer cases and is thus prone to more statistical uncertainty than the panel regression.⁵ It provides an indication that the findings are not due to a self-selection of refugees with high mental well-being into experiencing family reunification, given the direction of the coefficient being positive. Yet, we are cautious about comparing the coefficients in magnitude, given the lesser power resulting from analysing reunifications taking place after 2016 only. Second, we show how a larger share of family members living abroad decreases mental health.

Discussion

This analysis provides insights into the associations of family reunification on refugee mental health over time. The results indicate that family reunification improves mental health outcomes for refugees. For this analysis, we define family reunification as institutionally supported reunification or the individual effort to reunite. Hence, the results in this analysis are applicable to a wide array of countries: those enabling comprehensive resettlement and reunification programs as well as those in which individual mobility of family members creates opportunities for reunification.

Applying fixed-effect regressions on panel data of the IAB-BAMF-SOEP Survey of Refugees in Germany, we observe how reunifications are associated with refugee mental health. We find that the first reunifications are positively associated with mental health outcomes of refugees. Yet, the association does not increase in size for

further reunifications taking place than two. Our findings match previous work that found a negative association of family separation on mental health (Löbel 2020; Nickerson et al. 2010). The pathway through which the association unfolds can be explained with lowering the burden of knowing that family members aboard might live in danger (Nickerson et al. 2010). An increase in social support and being embedded in a broader local network does not seem to be the dominating mechanism, giving the non-linearity of the association (Goodson and Phillimore 2008; Honohan 2009). In the end, having experienced family reunification rather seems to be an event with positive implications for refugee mental health. Its frequency though is less important. Incoming refugees might initially need support and family roles change after reunification (Rask, Warsame, and Borell 2015). These incidences might explain the decreasing rate at which the number of reunifications is associated with positive mental health for those already in the host community. Other than that, given the relatively young refugee population, most will only reunite with the spouse, hence the opportunity for additional reunifications is small in the first place. Other than that, the size of the correlation is larger when only focusing on reunification with the nuclear family. This finding highlights the importance of the nuclear family for refugee well-being. It can be a hint that the emotional burden of family separation from a partner and children is much higher than a lack of larger family social support. The plan to reunite with children and a spouse seems more imminent than reuniting with siblings, not even speaking about other relatives such as parents or cousins.

The data does not indicate that the effect of family reunification on mental health is larger for women. Instead, the results reveal, that women have less opportunity to reunify with their family as they often immigrate with them in the first place. The potential of increasing social support through family reunification is thus limited for women in general – and for those that can realise reunification we do not have a robust indication that the effect is larger compared to men. This finding calls for further research as it is in part conflicting with previous research on gendered effects of social support and social integration among refugees. Previous research on integration trajectories found for instance gendered employment and language associations, explained with how women form and utilise social networks more often in the private sphere (Beiser and Hou 2017; Cheung and Phillimore 2017; Jacobsen, Krieger, and Legewie 2020). Adding to the discussion of gendered effects on social support and mental health, we present a substantially new finding as the data indicates that refugee men experience a much higher association between reunification and mental health once siblings are not included in the models. For women, the association remains equally large throughout the different model specifications. In contrast to men, they seem to improve their mental health equally through all kinds of family resources, also that of reunification with siblings.

Data and analytic strategy come with limitations. First, though the fixed-effect models account for unobserved heterogeneity such as ability, the results do not allow for a strict causal interpretation. Notably, several robustness checks indicate little self-selection into experiencing family reunification. Second, the analysis is no evaluation of a policy design. It does not differentiate reunification through legal and non-legal means. Theoretically, there is little foundation to differentiate unless one postulates that legal means are more secure for those following and have a different association with refugee mental health. It

would be interesting to investigate the association of changes in family reunification policy on refugee mental health. Knowing that states support family reunification can be a glimpse of hope for many. Third, the mechanisms by which family reunification is associated with refugee mental health remain unidentified. Fourth, although the results are robust over several specifications, the number of family reunifications in the data set is low given the limited opportunities of refugees to reunite in practice, particularly with siblings (Table A3). The non-significant associations for female refugees might be due to the limited numbers of family reunification per individual. This limited number of observations in the data is likely based on the circumstance that female refugees more readily arrive with the entire family, hence with limited opportunity to reunite although they have a family. The opportunity, reflected in our data, is much larger for male refugees. In the same vein, it is important to mention that our findings only apply to a sub-group of the refugee population, when considering reunification with a nuclear family. After all, most refugees in Germany are young, male and without a nuclear family. Hence, these individuals do not have the possibility to reunite with a spouse or children in the first place. In the end, it is an opportunity not every refugee has, particularly as the right to reunification is limited to the core family.

Future research can build upon the resource model and employ panel analyses to investigate the implications of family reunification for other integration outcomes: finding employment, improving education and language skills as well as managing administrative processes and broadening local support networks. Additionally, research should further outline the strength but also the limitations in social support provision within refugee families in the host communities and further explore gender differences. Though we have argued that the institutional context is only one enabler for family reunification, comparative research could disentangle legal settings and their implications for family reunification as well as how changes in family reunification policy affect refugee mental health.

In many contexts, family reunification policies apply restrictively. Germany suspended the reunification program and resumed it in 2018 with quotas. Applications have since reached the quota while demand for reunification is higher (Deutsche Welle 2019). The reason for limited institutional support is twofold. On the one hand, visa processes in countries of conflict are slow or absent and do not catch up with demand. On the other hand, restricting reunifications is a political signal and answer to a public discourse on the costs and benefits of (refugee) migration (Kofman 2004; Ruffer 2011; von Hermann and Neumann 2019). The findings from our analyses add to the argument for family reunification, particularly the nuclear family. While we did not differentiate between legal and non-legal means, it is the institutional setting that can be actively changed in order to ensure safe passage and reunification for refugee families at destination: with equally positive mental health implications for refugee men and women.

Notes

1. We define mental health as a continuum from languishing to flourishing in congruence with Keyes (2002) and the definition of the World Health Organization (WHO 2014).

2. Despite its clarity on family unity, international law is missing a universal definition of the term ‘family’. The increasing body of academic work and many legal rulings however point to the definition of a family as the ‘nuclear’ family, meaning spouses and their children.
3. Unfortunately, the SOEP survey does not ask the exact arrival date of parents and other family members moving to Germany. We, therefore, cannot include them in the analyses as we would not know at which point in time they arrived.
4. We impute missing values by using the information on asylum status from the years before, if possible.
5. For this method, the group of those experiencing family reunification diminishes as only reunification after the first interview in 2016 count in the analysis (see Appendix Tables A7–A8).

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