

A life course perspective on immigrants' mental health

Claudia Brunori

Thesis submitted for assessment with a view to
obtaining the degree of Doctor of Political and Social Sciences
of the European University Institute

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Department of Political and Social Sciences

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Examining Board

Professor Juho Härkönen, European University Institute (EUI Supervisor)
Professor Herman van der Werfhorst, European University Institute
Professor Renee Reichl Luthra, University of Essex
Professor Cris Beauchemin, INED

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Abstract

This dissertation is a collection of three empirical studies adopting elements from the life course framework for the investigation of immigrants' mental health in European destination countries. I use nationally representative survey data from the UK (Understanding Society) and France (Trajectoires et Origines 2) to study immigrants' mental health as a dynamic process, as well as how present and past experiences of transnational family separation affects immigrants' mental health. In the first chapter, I use data from the United Kingdom to test whether the "immigrants' paradox in mental health", the finding that established immigrants tend to have worse mental health than recently arrived ones, is reflective of within-individual mental health deterioration with tenure, or if it rather due to compositional differences between cohorts. I find that the latter is true, and that immigrants' within-individual mental health variation over time does not differ from that of natives. The second and third chapters investigate the association between transnational family separation and mental health in the UK and in France, respectively. In the second chapter, I study whether adult immigrants that experienced transnational separation from a parent in childhood have worse mental health compared to adult immigrants who migrated with their parents as minors. I find that this is the case for women, but not for men. In the third chapter, I study differences in mental health among immigrant parents by experience of transnational separation from a child. I find that immigrants who are transnationally separated from a child under 16 years old have significantly worse mental health than non-transnational immigrant parents. On the other hand, parents who experienced transnational separation from a child but then reunited have similar mental health as other non-transnational parents, suggesting that reunification is – among parents – a sufficient condition for recovery.

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Introduction

Research on mental health in the social sciences has long been concerned with life histories and long-term consequences of life events and conditions. To name only a few, central themes in mental health research have been the effect of adverse childhood experiences on mental health throughout adulthood (Jones et al., 2018; McLeod, 1991; Schilling et al., 2007) and processes of stress cumulation and of chronic strain (Dohrenwend, 1973; Turner & Lloyd, 1995). Contrasting with the rich literature on life course processes in mental health in the general population, research on immigrants' mental health is to date typically cross-sectional, and has rarely taken into account immigrants' life experiences before migration or beyond the destination countries' borders. An important cause of this limitation is the scarcity of large-scale, nationally representative, and especially longitudinal, surveys with information on immigrants' background and life histories as well as on mental health.

In this dissertation, I aim at contributing to the literature by adopting elements of life course research to study immigrants' mental health in two of the main European destination countries: the UK and France. In particular, I focus on the life course principles of life-span development – studying mental health as a dynamic process, and studying the association between *past* experiences and *present* outcomes – and of linked lives – studying how family relations can shape individual outcomes in the short and in the long term.

The dissertation is composed of three independent chapters. The first chapter is descriptive and aims at disentangling individual-level trajectories from cohort-level differences in immigrants' mental health, using panel data from the United Kingdom. In the second and third chapters I explore the association between current and past experiences of transnational separation between parents and children and immigrants' mental health. In the second chapter, I study the association between transnational separation from a parent during childhood and mental health in adulthood among adult immigrants living in the UK. In the third chapter, I move the focus to the experience of transnational separation from a child among immigrant parents living in France.

In the next sections, I, first, briefly introduce the main theories underlying this dissertation: the life course framework and the stress process model. In the second section, I present how mental health is conceptualised in literature, and what are the main findings concerning its development over the life course. I then review previous literature on patterns and determinants of immigrants' mental health in western destination countries. Next, I discuss literature's

limitations and how my research aims at contributing to it. Finally, I provide a brief overview of the three chapters composing the dissertation.

1. Theory: the life course framework and the stress process model

Throughout this dissertation, I aim at studying immigrants' mental health using principles from the life course framework. The life course framework is a theoretical perspective centred on the understanding of lives as *dynamic processes*, that are shaped by historical and geographical *contexts*, but also by individuals' *agency* and by their relationships with significant others (*linked lives*) (Elder et al., 2003). Other important characteristics of the life course approach are the *multidimensionality of lives* – the consequences of states and transitions occurring in one life domain extend to other life domains – and the centrality of *time* – the ramifications of transitions or states can depend on their timing and duration.

Another theory that is central for the understanding of mental health processes in the life course is the stress process model (Pearlin et al., 1981). This model identifies three essential elements of the stress process: sources of stress, coping resources and mechanisms, and manifestations of stress. *Sources of stress* (stressors) can be either single events (transitions) or prolonged states. In some cases, stressors are not isolated events (or states), but rather can generate or be part of chain reactions, leading to stress proliferation over time and/or across life domains. For example, job loss can lead to economic stress, which can lead to increased partner conflict and to rent insolvency, which in turn can lead, respectively, to divorce and to eviction.

Not all individuals have similar reactions to similar stressors: in the stress process model, this is explained by individual-level differences in *coping resources and mechanisms*. These include material resources as well as psychological resources (e.g. self-esteem) and social support. Coping resources and mechanisms moderate the impact of stressors, but they can also be eroded by the latter, thus increasing vulnerability to new or repeated stressors. Finally, *manifestations of stress* can range from somatic symptoms to psychological distress and to mental disorders. In this dissertation, I focus on mental health outcomes. I provide a more detailed explanation of this concept and its dimensions in section 2.1.

The two theoretical perspectives have many common elements. Both stress the role of the past in shaping present outcomes; the interconnectedness of different life domains; and the role of social relationships as (potential) sources of stress and constraints, but also as protective factors against stressors. In the three empirical chapters of the dissertation, I adopt different elements from the life course framework and stress process model. In the first chapter, I follow the life

course principles of studying phenomena in their life-long development rather than as static outcomes, and of looking at differences between cohorts. In the second and third chapters, I apply the focus on linked lives and influence of family relations in individual outcomes, as well as testing for scarring effects of exposure to stressors. In the second chapter, I also look at differences in mental health by timing and duration of exposure.

2. Mental health: conceptualisations and life course development

2.1. What is mental health?

There are three main ways to conceptualise and measure mental health (OECD, 2023). The first one is the *binary model*, identifying two states: mental illness as defined by diagnostic criteria, and absence of it. Examples of common mental disorders are major depression or anxiety disorders. The binary definition hides significant variation: individuals experiencing *some* symptoms but not qualifying for diagnosis are likely to experience substantial limitations in their daily quality of life, and they might be one stressor away from experiencing above-threshold symptoms. At the same time, the *absence* of symptoms of mental ill-health does not necessarily correspond to thriving. This variation is better taken into account conceptualising mental health as continuous. Therefore, the second way to conceptualise mental health is as a *continuum* from positive mental health (experiencing positive emotions, feeling a sense of meaning) to severe mental illness. However, the relation between positive mental health and symptoms of psychological distress is not linear: individuals can experience happiness even while clinically depressed. Thus, the third conceptualisation sees positive mental health and symptoms of mental illness as two distinct, although not independent, continuums.

In social sciences literature, the concept of mental health – especially meant as a continuum – is often conflated with that of subjective well-being. Indeed, the two overlap substantially. According to the OECD definition (OECD, 2013), subjective well-being has three dimensions: life evaluation (satisfaction with life as a whole, with one's job, etc.), affect (emotions of happiness, worry, sadness, etc.), and eudaimonia (sense of meaning and purpose in life). While affect and eudaimonia are also dimensions of (positive) mental health, life evaluation is not (OECD, 2023). Conversely, symptoms of mental distress beyond those related to affect are not generally considered as dimensions of subjective well-being.

In this dissertation, I aim to study mental health as a spectrum from positive mental health to mental illness, therefore aligning myself with the second of the above-described conceptualisations. However, the operationalisation of mental health in the empirical chapters

is dependent on the information available in the secondary data used. In the first and second chapters, mental health is measured using the mental health section of the Short Form 12 questionnaire (SF-12 MCS), which captures common symptoms of psychological distress (which align with diagnostic criteria for depression and for anxiety) as well as positive mental health. In the third chapter, the only measure of mental health available in the data is derived from a pre-screening tool for depressive episodes – which does not tap into positive mental health, nor into (mild) symptoms of psychological distress associated with other common disorders, such as anxiety. Therefore, in the third chapter, I use a binary measure of mental health identifying individuals who experienced one of the two main diagnostic criteria for depressive episodes (feeling particularly sad or depressed every day or most days for at least two weeks, and losing interest and enjoyment in everything every day or most days for at least two weeks), and those who did not.

2.2. Mental health and the life course

In this section, I briefly review the literature on patterns and trajectories in mental health – defined as positive mental health, binary mental illness, and as continuous psychological distress – over the life course. It is a popular belief that *happiness* follows a U-curve from childhood to old age, reaching its bottom during the “middle-age crisis” (Galambos et al., 2020). However, this finding has at best mixed support in empirical research, especially using longitudinal data (see for a review (Galambos et al., 2020; Kratz & Brüderl, 2021), and is often found to be driven by methodological choices (and inaccuracies), such as reliance on cross-sectional data (Galambos et al., 2020), controlling for relevant mediating factors (Bartram, 2020; Kratz & Brüderl, 2021), or methods for panel data analysis that do not appropriately disentangle age, cohort, and period effects (Bell, 2014; Kratz & Brüderl, 2021). Studies using longitudinal data to disentangle age from cohort effects in mental health, life satisfaction or happiness have often found that the U-curve observed in cross-sectional studies and in studies not disentangling age and cohort effects is due to cohort-level differences in average levels of mental health (or life satisfaction or happiness) (Bell, 2014; Li, 2016), whereas across all cohorts, mental health is found to deteriorate throughout the adult life course, though at a slow pace approximately between ages 40 and 60 (Bell, 2014; Kratz & Brüderl, 2021; Li, 2016; Zhang & Zhao, 2021).

On the side of mental illness, research – which is mostly cross-sectional and largely US-based – generally finds that the risk of *mental disorders* is highest in young adulthood and then decreases with age (George, 2013), whereas cross-sectional studies have found evidence for a

U-shaped trend of *psychological distress symptoms* over the life course, with middle aged adults having fewer symptoms than both younger and older individuals (George, 2013).

A consistent finding in studies of mental illness is that childhood is a key period for mental health: exposure to stressors during childhood increases the risk of both mental disorders and symptoms of psychological distress throughout the life course (see for a review McLaughlin, 2020), and onset of mental illness during childhood is a particularly strong – although not deterministic – predictor of mental illness in adulthood (George, 2013). This “long arm of childhood” acts through both psychological and social mechanisms. Concerning the former, early exposure to stressors (such as parental divorce, chronic poverty, bereavement, exposure to violence) can affect the development of psychological resources that are key to stress responses, such as social and emotional processing skills and emotional regulation (McLaughlin, 2020). As for social mechanisms, early psychological distress and/or mental disorders can affect the formation of social networks and educational outcomes, which in turn affect socioeconomic position and financial resources in adulthood.

In contrast to the expected long-lasting effect of childhood stress exposure on mental health throughout the life course, exposures to stressors in adulthood are generally expected to lead to relatively short-term deterioration of mental health, followed by adaptation. This expectation is formalised by the “set point theory”, which has been developed in relation to subjective wellbeing (Lykken & Tellegen, 1996). This theory states that individuals have a “set point” of happiness, defined by their personality and genetics, and that life events can lead to only temporary deviations from it. This hypothesis finds some support with respect to some life events, such as marriage and childbirth (see for a review Anusic et al., 2014). However, studies supporting the set-point theory have been criticised for not taking into account changes in subjective wellbeing among people who did *not* experience such life events (Anusic et al., 2014). In addition, some stressors, such as marriage dissolution and health deterioration (Anusic et al., 2014; Easterlin, 2005) tend to have a lasting effect on happiness, suggesting that adaptation and recovery depend at least on the type (and gravity) of stressor. According to the life-course framework and to stress process theory, other factors affecting the chance of and time to recovery are the timing of the stressor, the psychosocial resources available to the individual, and the context in which the stressor is experienced, i.e. if it is an isolated event/condition or rather part of a chain of stressors (stress proliferation).

3. Literature review: patterns and determinants of immigrants' mental health in Western destination countries

3.1. Patterns in immigrants' mental health: the healthy immigrant effect and the immigrants' paradox in mental health

The common finding in studies of immigrants' mental health trajectories in destination country is that immigrants tend to have better mental health compared to natives with similar characteristics upon arrival, and that this initial advantage is lost or even reversed for more established immigrants. This finding is generally labelled – in parallel to the same finding in physical health – the “healthy immigrant effect” or the “immigrants' health paradox”. Throughout this thesis I refer to the first element of the finding as the healthy immigrant effect (HIE), which is generally explained through immigrants' positive selection: it tends to be the healthiest, more optimistic, and perhaps more resilient individuals who decide to migrate.

I refer to the second element – more established immigrants having worse mental health than recently arrived ones – as the immigrants' paradox in mental health (IHP). This finding seems counterintuitive for two reasons. Firstly, immigrants' labour market trajectories are expected to follow a U-shaped pattern, starting from before migration (e.g. Chiswick et al., 2005; Fellini & Guetto, 2019). This means that immigrants are expected to experience some downward mobility from their pre-migration socioeconomic status to their first post-migration one, because of initial difficulties in having their pre-migration qualifications recognised and lack of country-specific skills and resources. With time in the destination country, immigrants tend to have their pre-migration qualifications recognised and to acquire relevant country-specific skills and resources, which allow them to reach better labour market positions, ideally restoring their pre-migration socioeconomic status, or even reaching a higher one.

Because labour market position and economic security are important determinants of mental health (Allen et al., 2014), immigrants' mental health could be expected, too, to follow a U-shaped trajectory from before migration to when immigrants have become established residents of their country of destination. Two studies, to my knowledge, have found evidence of such a U-shaped trajectory in mental health with time since arrival (Montazer & Wheaton, 2017; Yang, 2021), both relative to immigrants to Canada. However, neither of these studies aims at disentangling the effect of age from that of time since arrival. This is an important limitation, as mental health is not – on average – stable through the life-course (see section 2.2): because most immigrants move to their destination country as young adults, ageing, alone, might be the

reason for both the observed mental health deterioration in the first years after migration, and the following improvement.

Secondly, according to the stress process model (Pearlin et al., 1981), individuals who have an initial advantage in mental health-relevant resources are expected to maintain or increase their advantage over the life course. This is because higher mental health-relevant resources, such as self-esteem and optimism, but also mental health itself, are expected to buffer the detrimental effects of adverse life conditions and events (Pearlin et al., 1981). Thus immigrants, having on average better initial mental health than natives, are expected to be less vulnerable to stressors.

3.2. Determinants of immigrants' mental health

While, as discussed in section 3.1, the IHP seems to contradict theoretical expectations for immigrants' mental health trajectories, there are several mechanisms through which it can be explained. Being an immigrant (and/or being part of a visible minority) is associated, net of socioeconomic factors and health conditions, to higher exposure to some stressful conditions, such as economic insecurity and failed expectations, ethnic/racial discrimination, and cultural dissonance. In the next paragraphs, I will review and discuss previous literature on these mechanisms.

3.2.1. Economic insecurity and failed expectations

Traditional assimilation theories have two important expectations for immigrants' socioeconomic trajectories in the country of destination. First, as previously mentioned, immigrants' labour market outcomes are expected to follow a U-shaped trajectory from before migration to when they are established members of the destination society. Second, the initial socioeconomic gap between immigrants and natives, due to difficulties in having foreign qualifications recognised and to initial lack of country specific skills, is supposed to gradually disappear over time in the destination country, or at least across generations.

Neither of these expectations is always met. Concerning the first one, while some studies from the US and Australia (Chiswick et al., 2005) have found evidence that immigrants tend to restore their pre-migration socioeconomic status with them in the destination country, evidence from Europe (Fellini & Guetto, 2019) suggests that this restoration is often only partial, especially in countries with highly segmented labour markets. Concerning the second expectation, several studies show that most immigrant groups and native ethnic minorities are persistently disadvantaged in terms of employment rates and of risk of overeducation, compared to the native ethnic majority. Zwysen and Demireva (2018) find that, in the UK, immigrants,

and sometimes their descendants too, are more likely to be unemployed than white British natives, and that higher qualifications do not translate in smaller employment gaps. In addition, most highly qualified immigrants have much higher overeducation risks than white British natives with similar qualifications. White immigrants are an exception, as they do not have higher unemployment rates than white British natives, and white immigrants from western countries (as opposed to those from Eastern Europe) are not more likely to be overeducated than white natives, either.

Cumulative exposure to unemployment and overeducation are detrimental for mental health in general (Bracke et al., 2013; Strandh et al., 2014), but they might affect immigrants more strongly than natives. This might be because of status loss relative to pre-migration conditions (Engzell & Ichou, 2020; Euteneuer & Schäfer, 2018), and to stronger discrepancy between expectations, as migration is often part of a project of upward mobility, and reality. Qualitative evidence from Canada suggests that un- and under- employed skilled immigrants identify their precarious and unsatisfactory employment conditions as causing them feelings such as stress, depression, and worry (Dean & Wilson, 2009). In particular, these feelings originate from economic insecurity, de-skilling, and perception of status loss. Lack of income and economic insecurity are especially stressful for immigrants because they might impact their residence permit renewal, and their ability to support their family or to reunite with them (ibid.). Thus, on one side, immigrants with precarious working and economic conditions might not be able to reunite with their families, causing feelings of loneliness (ibid.). On the other, for those who do live with their family, stress related to un- or under- employment can increase interpersonal conflict within the family (ibid.). Although there are no quantitative studies, to my knowledge, that have attempted at studying whether work-related stress has stronger effects on family conflict for immigrants than for natives, there is evidence that immigrants, both recent and established, have higher levels of work-to-family conflict compared to natives, and that work stressors explain only a part of this gap (Montazer & Young, 2017).

Another explanation that has been proposed for the IHP is that length of residence might come with a shift in the comparison group for socioeconomic achievement (Shen & Kogan, 2020). According to the authors, soon after arrival immigrants compare themselves to their origin country's population, whereas with time their comparison group shifts toward the destination country's one. In this perspective, immigrants from less economically developed countries are expected to be more satisfied with their socioeconomic status in the early years after migration, as they will compare their income to the income distribution in their country of origin. As they

assimilate, they will increasingly compare themselves to the population in their country of destination, and will therefore be less satisfied with their income, leading to disappointment, failed expectations, and stress. A limit of this interpretation is that it does not consider geographical differences within sending countries and immigrants' selectivity: immigrants are not a random sample of their origin country's population, so they are likely to compare their current socioeconomic position to their pre-migration one ("subjective socioeconomic status", see e.g. (Engzell & Ichou, 2020; Euteneuer & Schäfer, 2018; Ichou, 2014), or to the one of their peers (with their same age, geographical origins and socioeconomic background) who did not migrate, rather than to the general population in the country of origin.

3.2.2. Ethnic and racial discrimination

Immigrants are likely to experience ethnic and/or racial discrimination on a regular basis. While racial discrimination refers to discrimination based on purely phenotypical characteristics of the individual, ethnic discrimination refers to broader characteristics such as culture, religion, or language (Flores, 2015). Discrimination can arise in daily interpersonal contacts, including street harassment, or in institutional contexts, such as housing, healthcare, or employment (Karlsen & Nazroo, 2002). Discrimination episodes can have different levels of intensity, and therefore different impact on people's life. Interpersonal discrimination can vary from not being taken seriously in a conversation, to being physically assaulted in the street. Discrimination in institutional contexts can vary from being treated rudely by institutional figures, to being denied access to timely care, quality housing, or skill-matched/decently paid/stable employment. Discrimination cumulates across life domains and across time. This is relevant to study its effects on mental health: while some studies measure perceived exposure to discrimination as a dichotomic variable (e.g. Nandi et al., 2020), other use measures that take into account its cumulation across life domains (e.g. Harris et al., 2006; Montazer, 2019), and over time (e.g. (Wallace et al., 2016).

In a classical assimilation framework, discrimination is expected to be based mostly on cultural differences (Flores, 2015). Therefore, recent immigrants are expected to be more exposed to discrimination than more established ones, because they are more evidently "different" from the native majority. As immigrants adapt to the destination country, most of the differences that do not pertain their physical appearance or name are expected to disappear, and discrimination accordingly. To the contrary, conflict theories have argued that the longer immigrants live in their adoptive country, the more they become aware of the structural barriers to their social mobility and of the pervasive discrimination they are objects of (Flores, 2015).

This idea, that has sometimes been referred to as “integration paradox” (e.g. Schaeffer, 2019; Tuppatt & Gerhards, 2020), is supported by a large body of evidence: second- and later-generations are more likely to report ethnic/racial discrimination than immigrants (Montazer, 2019; Nandi et al., 2020; Tuppatt & Gerhards, 2020; Wallace et al., 2016), higher educated visible-minority immigrants, who generally have better labour market outcomes and more contacts with the native ethnic majority, report more discrimination than lower educated ones (Tuppatt & Gerhards, 2020), and visible-minority immigrants report more discrimination the longer the time spent in the destination country (Flores, 2015; Montazer, 2019).

The increasing reporting of discrimination with length of residence in the destination country and across generations is likely due, partly, to differences in perceptions of discrimination, and partly to differences in exposure to it. Recent immigrants might be less able to recognise discriminatory behaviours because of their poorer linguistic skills, compared to more established immigrants and especially to visible-minority natives. Also, recent immigrants might not recognise discrimination as such, because they might not be aware, upon arrival, of how ethnic or racial phenotypes trigger prejudice and unequal treatment in the destination society (Flores, 2015; Gee et al., 2006; Montazer, 2019), or they might perceive some forms of discrimination as “normal” due to their outsider status (Gee et al., 2006). Indeed, some evidence suggests that, among school-age individuals, the longer immigrants’ residence in the destination country, the more they report racial discrimination and the less they report religious/origin-country based discrimination (Flores, 2015). On the other hand, more established immigrants, higher educated ones, and children of immigrants tend to have more contacts with the ethnic majority, and thus have a higher exposure to discrimination (Schaeffer, 2019; Tuppatt & Gerhards, 2020).

Several studies have linked ethnic and racial discrimination to poor mental health outcomes (e.g. Montazer, 2019; Nandi et al., 2020; Wallace et al., 2016). Some have identified a dose-response effect of discrimination, measured across life domains (Harris et al., 2006; Wallace et al., 2016) and at different time points (Wallace et al., 2016), on mental health. They also have found that cumulative exposure to discrimination explains the mental health disadvantage, net of socioeconomic status, of some ethnic minorities (Wallace et al., 2016). Other studies have identified differences in the effect of racial/ethnic discrimination on mental health between ethnic/racial groups and between immigrants and natives. Gee and colleagues (Gee et al., 2006) report a stronger effect of discrimination on Black respondents’ mental health than on Latinos’ in the US. This could be due to qualitative differences in the types of discrimination experienced

by the two groups, or, as the authors suggest, to the fact that Black individuals are more likely to be natives, and therefore have been exposed to discrimination for a longer time than immigrants. Other studies support the latter hypothesis, as ethnic and racial harassment is found to have a stronger effect (although the difference in the effect is not statistically different) for native minorities than for immigrants (Nandi et al., 2020). Finally, some studies have found that increases in perceived interpersonal discrimination with length of residence in the destination country explain the IHP, although only for visible-minority immigrant men (Montazer, 2019).

It is important to note that, while the above mentioned literature focuses mostly on the direct effect of exposure to interpersonal discrimination on mental health, discrimination, especially in institutional contexts, can damage mental health also, and perhaps most importantly, through degraded housing and neighbourhood conditions, economic insecurity, and reduced access to healthcare (Gee et al., 2006; Harris et al., 2006; Luthra et al., 2020).

3.2.3. Acculturation

A third mechanism that can be used to explain the IHP is acculturation. Settling in a new country pressures individuals into re-negotiating their behaviours, attitudes and overall identity to adapt to the new context (Vijver et al., 2016). There are several factors influencing the way immigrants acculturate. First, immigrants' participation in institutional settings such as work and education, and their amount exposure to other languages, religions, and ethnic groups, will affect the amount of pressure to adapt their identity and behaviours. Second, immigrants differ in their acculturation orientations. These differ in the extent to which individuals adopt other cultural identities and expressions from the destination country, and the extent to which they maintain their origin culture's ones. One does not exclude the other: individuals can identify as both cultures and adopt behaviours from both. Some individuals will switch between identities depending on the context, other will merge them into a single identity with features of both.

There are several interconnected pathways linking acculturation to mental health deterioration. First, adapting to new situations and roles is generally associated with stress (Pearlin et al., 1981), and it might trigger anxiety, due to the uncertainty of who one is becoming, and feelings of loss and nostalgia, as immigrants might feel like they are losing contact with their origin culture (Vijver et al., 2016). Second, as members of a family might have different levels of contact with the other culture(s) in the destination country and different acculturation orientations, dissonant acculturation might increase interpersonal conflict within the family, as well as some intrapersonal conflict (e.g. Giguère et al., 2010; Montazer & Wheaton, 2011).

Third, attachment to one's co-ethnic community gives access to mental health-protective resources, such as social support (Nandi et al., 2020), and reduces the risk of intra- and inter-personal conflict due to cultural dissonance. Consequently, the loosening of such ethnic attachment over time in the destination country increases conflict, while reducing the resources available to deal with it. Fourth, some cultures protect against health-damaging behaviours common in western countries, such as smoking, (binge) drinking, and having an unbalanced diet (e.g. Hamilton et al., 2015; Luthra et al., 2020). Acculturation increases the chances of adopting such behaviours, thus negatively affecting physical and mental health both directly, and through increasing (inter- and intra-personal) conflict, due to the incompatibility between these behaviours and the norms from the origin culture.

It should be noted that biculturalism does not necessarily imply conflict: it is common for bicultural individuals to switch between cultural identities, depending on the context (Giguère et al., 2010). However, cultural expectations can result incompatible in some life domains, such as intimate relationships and choosing a career, resulting in stress for the individual, and possibly in within-family conflict, especially between children and their immigrant parents (ibid.). While the consequences of cultural dissonance on mental health for immigrant and second-generation youth have been investigated by previous literature (Giguère et al., 2010; Montazer & Wheaton, 2011), the consequences of the deriving increased within-family conflict for adult immigrants have not, at least to my knowledge. However, studies have indeed suggested that interpersonal strain, which is likely to at least partly result from dissonant acculturation, increases with residence duration, and that this explains part of the post-migration mental health decline¹ (Yang, 2021).

Some studies have considered the hypothesis that ethnic attachment's positive effect on mental health works through buffering the impact of negative experiences (Nandi et al., 2020). This study finds that ethnic attachment does buffer the effect of harassment on mental health, but only for visible-minority natives; for immigrants, the effect of harassment is bigger the stronger is ethnic attachment. This result might however be due to differences in the intensity and frequency of harassment between immigrants with stronger and weaker ethnic attachment. For example, stronger ethnic attachment might be signalled by wearing clothes typical of the origin

¹ However, this study only includes immigrants in its sample, not allowing to establish whether the increase in interpersonal strain and in mental distress with time is an immigrants' specificity, or if the same phenomenon can be observed among natives.

culture, that is likely to attract more, and possibly more violent, harassment than other characteristics alone, such as skin colour or accent.

4. Limits of previous research and contributions

In the previous section, I have reviewed literature on immigrants' mental health in western destination countries and on its main determinants. I have mentioned the common findings of the HIE and the IHP, and the main mechanisms used to explain the latter: cumulative exposure to socioeconomic disadvantage, to racial and ethnic discrimination, and acculturative stress. In this section, I present the limits of the literature that this dissertation addresses, and contextually provide an overview of the three empirical chapters.

4.1. Age, cohort, or selection?

The first gap I address in this thesis is of methodological character. As discussed in section 3.1, a consistent finding in literature on immigrants' trajectories of mental health in countries of destination is that more established immigrants tend to have worse mental health than recently arrived ones. This phenomenon – that I label throughout the dissertation “immigrants' health paradox”, or IHP – is generally interpreted as suggestive of an individual-level deterioration of mental health for immigrants over time in the destination country. However, the evidence for this phenomenon is based almost exclusively on cross-sectional data. As a consequence, the IHP might in fact be due to three phenomena, or a combination of them: first, it might indeed be due to individual-level deterioration of mental health since arrival. Second, it could reflect differences between immigration and/or birth cohorts: individuals arrived at different times to a country are likely to differ in characteristics such as age, reason to migrate, country of origin, or educational levels. This is partly due to self-selection into migration, partly to historical contexts, such as changes in destination countries' immigration policies or in origin countries' economic and political conditions. In addition, immigrants arrived in different years can have different trajectories in the destination countries, due to changes in the latter's economic, political, or labour market conditions. Finally, selective re-migration, mortality, or non-response might lead to apparent differences in mental health between recent and established immigrants in absence of within-individual variation over time or cohort differences at the time of arrival.

In the first chapter of this dissertation, titled “An immigrants' paradox in mental health? A life-course approach”, I address this limitation in the literature. I use panel data from the UK survey *Understanding Society*, and a combination of fixed- and random- effects panel models to

highlight how mental health trajectories differ between immigrants and natives in the UK, and between birth- and immigration- cohorts. Findings suggest that, in the UK, the IHP reflects differences in mental health between immigration and birth cohorts, possibly in part due to selective remigration, mortality, or attrition. Individual level variation in mental health over time is similar between immigrants and natives.

4.2. Immigrants' lives before and beyond the destination country: transnational families

Another important limitation of quantitative studies on immigrants' mental health is the relatively scarce attention given to immigrants' pre-migration life history, especially concerning non-economic characteristics such as family ties. This is problematic, as migrations are rarely a linear process, in which an autonomous, independent individual decides to move from one country to another with the intent of establishing new roots there. Rather, migration is often a decision negotiated within the (extended or nuclear) family unit. In some cases, migration is meant to be temporary and aimed at accumulating savings and/or experience before moving back to the origin country. In other cases, the aim is for the whole family to settle in a new country.

In both cases, families are likely to spend considerable amounts of time separated across borders, while still maintaining a sense of familyhood. This can be due partly to restrictive immigration policies, partly to financial constraints, and partly to individual and cultural preferences. Transnational separation and maintaining a sense of familyhood across borders have been made easier in the last decades by the development of ICTs and by the expansion of relatively cheap intercontinental transportation. Nonetheless, transnational separation is generally considered to be an emotionally straining situation for all family members (e.g. Lam & Yeoh, 2019; Nobles et al., 2015).

Transnational families have been mostly ignored by sociological research until the early 2000s. Since then, the field has grown considerably. A substantial body of (largely quantitative) literature has studied the consequences of separation due to parental migration for *children left (staying) behind*, both in the context of rural-urban migrations in China (e.g. Zhao & Yu, 2016), and of international migrations, e.g. from South-East Asia (Graham & Jordan, 2011), Latin America (DeWaard et al., 2018) and Sub-Saharan Africa (Mazzucato, 2015). Studies have focused on educational and physical health outcomes as well as on psychological well-being of children left behind, comparing them to children on non-migrant parents in high emigration countries. This research has often found that children transnationally separated from one of

both parents tend to have worse mental health than children of non-migrant parents (Graham & Jordan, 2011; Mazzucato et al., 2015; Vanore et al., 2015; Wu et al., 2015), although some have found no such association in some high-emigration countries (Graham & Jordan, 2011). Other studies have suggested that, in some contexts, transnational separation is only associated with poor mental health outcomes when combined with instability of children's care arrangements or with parental divorce (Cebotari et al., 2017; Mazzucato et al., 2015).

Another important strand of (mostly qualitative) research has focused on the *transnational migrant mothers* at the centre of the "Global Care Chain", that is, women who leave their children to the care of extended kin and neighbours to work as care workers in richer countries in Asia, North America, and Europe (e.g. Horton, 2009; Suárez-Orozco et al., 2011). Recently, some qualitative studies have expanded the focus on *transnational migrant fathers* (Dávalos, 2020; Poeze, 2019), highlighting how migrant fathers increasingly attempt to build meaningful relations with their children via ICT and visits.

Qualitative literature on this topic has generally reported feelings of guilt and sadness over transnational separation from children, among both mothers (Horton, 2009; Suárez-Orozco et al., 2011) and fathers (Dávalos, 2020; Poeze, 2019). Financial stress due to often precarious and intensive working conditions, paired with the pressure to send remittances to the staying behind family members, add to the feelings of guilt and loneliness due to the separation. This is especially the case for men, who often rely on remittances and gifts as a tool to express their love towards their children and to fulfil their culturally mandated roles as breadwinners (Dávalos, 2020; Poeze, 2019). The quantitative literature on mental health of transnational parents has mostly supported the expectations of qualitative literature, in that transnational parents are generally found to have worse mental health and/or lower life satisfaction than non-transnational immigrant parents (Arenas et al., 2021; Dito et al., 2017; Haagsman et al., 2015; Mazzucato et al., 2017; White et al., 2019). However, some studies have found this to be only true for transnational mothers (Arenas et al., 2021; Haagsman et al., 2015).

In the second and third chapters of this dissertation, I address several limitations of the quantitative literature on transnational families and mental health. First, quantitative literature has generally looked at the association between *current* TFS and mental health. Therefore, little is known about potential long-term effects of transnational separation after reunification, especially for former transnational parents. The limited literature on children has shown that children reuniting with their parents in the destination country have worse mental health outcomes compared to children who migrated with their parents (Eremenko & Bennett, 2018;

Suárez-Orozco et al., 2002). Qualitative evidence suggests that part of this disadvantage is due to the reunification itself being a stressful process (Suárez-Orozco et al., 2002, 2011). These studies have however been limited to the few years after reunification, and to individuals who reunited with their parents during childhood/teenagerhood.

A second limit of quantitative literature on the association between TFS and mental health is that it is limited in geographical scope: research on transnational families in general, and on children staying behind specifically, tends to focus either on single origin groups, on single high emigration countries, or to compare immigrants from different origin countries within the same geographical area. In the second and third chapter, I adopt a destination country focused approach to compare immigrants from a wider variety of origin countries. This approach can give insight into whether the association between TFS and poor mental health only concerns specific origin countries, or if it can be generalised to all immigrants. Adopting a destination country focused approach also allows to assess how common is TFS among immigrants in a country, and how patterns of transnational separation differ across origin groups and time of migration.

In the second chapter, titled “A scarring effect of having stayed behind? Experience of transnational family separation and mental health of immigrant adults”, I use data from Understanding Society to study the association between having experienced transnational separation from a parent as a child and mental health among immigrant adults living in the UK. I stratify the analyses by gender and analyse differences in the association by timing and duration of separation, and by gender of the transnational parent. I find that the experience of transnational family separation during childhood is associated with significantly worse mental health in adulthood, in certain circumstances, among women, but not among men.

Finally, in the third chapter, titled “Parenting from abroad: mental health of immigrant parents with children left behind”, I study the association between past and present experience of transnational parenthood and mental health in France. I use data from the French survey *Trajectoires et Origines 2*, additionally looking at heterogeneities by gender, age of the transnationally separated children, legal status, and employment status. I find that transnational fathers and mothers have significantly worse mental health than parents who migrated with their children, especially when the separation involves minor children. The mental health of formerly transnational parents does not differ significantly from that of parents who migrated with their children, suggesting that reunification might be sufficient for recovery.

References

- Allen, J., Balfour, R., Bell, R., & Marmot, M. (2014). Social determinants of mental health. *International Review of Psychiatry*, 26(4), 392–407. <https://doi.org/10.3109/09540261.2014.928270>
- Anusic, I., Yap, S. C. Y., & Lucas, R. E. (2014). Testing Set-Point Theory in a Swiss National Sample: Reaction and Adaptation to Major Life Events. *Social Indicators Research*, 119(3), 1265–1288. <https://doi.org/10.1007/s11205-013-0541-2>
- Arenas, E., Yahirun, J., Teruel, G., Rubalcava, L., & Gaitán-Rossi, P. (2021). Gender, family separation, and negative emotional well-being among recent Mexican migrants. *Journal of Marriage and Family*, 83(5), 1401–1419. <https://doi.org/10.1111/jomf.12776>
- Bartram, D. (2020). Age and Life Satisfaction: Getting Control Variables under Control. *Sociology*, 55(2), 421–437. <https://doi.org/10.1177/0038038520926871>
- Bell, A. (2014). Life-course and cohort trajectories of mental health in the UK, 1991–2008 – A multilevel age–period–cohort analysis. *Social Science & Medicine*, 120, 21–30. <https://doi.org/10.1016/j.socscimed.2014.09.008>
- Bracke, P., Pattyn, E., & Von dem Knesebeck, O. (2013). Overeducation and depressive symptoms: Diminishing mental health returns to education. *Sociology of Health and Illness*, 35(8), 1242–1259. <https://doi.org/10.1111/1467-9566.12039>
- Cebotari, V., Mazzucato, V., & Siegel, M. (2017). Child Development and Migrant Transnationalism: The Health of Children Who Stay Behind in Ghana and Nigeria. *The Journal of Development Studies*, 53(3), 444–459. <https://doi.org/10.1080/00220388.2016.1187723>
- Chiswick, B. R., Lee, Y. L., & Miller, P. W. (2005). A longitudinal analysis of immigrant occupational mobility: A test of the immigrant assimilation hypothesis. *International Migration Review*, 39(2), 332–353. <https://doi.org/10.1111/j.1747-7379.2005.tb00269.x>
- Dávalos, C. (2020). Localizing masculinities in the global care chains: Experiences of migrant men in Spain and Ecuador. *Gender, Place and Culture*, 27(12), 1703–1722. <https://doi.org/10.1080/0966369X.2020.1715347>
- Dean, J. A., & Wilson, K. (2009). 'Education? It is irrelevant to my job now. It makes me very depressed': Exploring the health impacts of under/unemployment among highly skilled recent immigrants in Canada. *Ethnicity and Health*, 14(2), 185–204. <https://doi.org/10.1080/13557850802227049>

- DeWaard, J., Nobles, J., & Donato, K. M. (2018). Migration and parental absence: A comparative assessment of transnational families in Latin America. *Population, Space and Place*, 24(7), e2166. <https://doi.org/10.1002/psp.2166>
- Dito, B. B., Mazzucato, V., & Schans, D. (2017). The Effects of Transnational Parenting on the Subjective Health and Well-Being of Ghanaian Migrants in the Netherlands. *Population, Space and Place*, 23(3), e2006. <https://doi.org/10.1002/psp.2006>
- Dohrenwend, B. S. (1973). Social status and stressful life events. *Journal of Personality and Social Psychology*, 28(2), 225–235. <https://doi.org/10.1037/h0035718>
- Easterlin, R. A. (2005). Building a Better Theory of Well-Being. In L. Bruni & P. L. Porta (Eds.), *Economics and Happiness: Framing the Analysis* (p. 0). Oxford University Press. <https://doi.org/10.1093/0199286280.003.0002>
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The Emergence and Development of Life Course Theory. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 3–19). Springer US. https://doi.org/10.1007/978-0-306-48247-2_1
- Engzell, P., & Ichou, M. (2020). Status Loss: The Burden of Positively Selected Immigrants. *International Migration Review*, 54(2), 471–495. <https://doi.org/10.1177/0197918319850756>
- Eremenko, T., & Bennett, R. (2018). Linking the family context of migration during childhood to the well-being of young adults: Evidence from the UK and France. *Population, Space and Place*, 24(7), e2164. <https://doi.org/10.1002/psp.2164>
- Euteneuer, F., & Schäfer, S. J. (2018). Brief Report: Subjective Social Mobility and Depressive Symptoms in Syrian Refugees to Germany. *Journal of Immigrant and Minority Health*, 20(6), 1533–1536. <https://doi.org/10.1007/s10903-018-0692-y>
- Fellini, I., & Guetto, R. (2019). A “U-Shaped” Pattern of Immigrants’ Occupational Careers? A Comparative Analysis of Italy, Spain, and France. *International Migration Review*, 53(1), 26–58. <https://doi.org/10.1177/0197918318767931>
- Flores, R. D. (2015). The Resurgence of Race in Spain: Perceptions of Discrimination Among Immigrants. *Social Forces*, 94(1), 237–269. <https://doi.org/10.1093/sf/sov056>
- Galambos, N. L., Krahn, H. J., Johnson, M. D., & Lachman, M. E. (2020). The U Shape of Happiness Across the Life Course: Expanding the Discussion. *Perspectives on Psychological Science*, 15(4), 898–912. <https://doi.org/10.1177/1745691620902428>

- Gee, G. C., Ryan, A., Laflamme, D. J., & Holt, J. (2006). Self-Reported Discrimination and Mental Health Status Among African Descendants, Mexican Americans, and Other Latinos in the New Hampshire REACH 2010 Initiative: The Added Dimension of Immigration. *American Journal of Public Health, 96*(10), 1821–1828. <https://doi.org/10.2105/AJPH.2005.080085>
- George, L. K. (2013). Life-Course Perspectives on Mental Health. In C. S. Aneshensel, J. C. Phelan, & A. Bierman (Eds.), *Handbook of the Sociology of Mental Health* (pp. 585–602). Springer Netherlands. https://doi.org/10.1007/978-94-007-4276-5_28
- Giguère, B., Lalonde, R., & Lou, E. (2010). Living at the Crossroads of Cultural Worlds: The Experience of Normative Conflicts by Second Generation Immigrant Youth. *Social and Personality Psychology Compass, 4*(1), 14–29. <https://doi.org/10.1111/j.1751-9004.2009.00228.x>
- Graham, E., & Jordan, L. P. (2011). Migrant Parents and the Psychological Well-Being of Left-Behind Children in Southeast Asia. *Journal of Marriage and Family, 73*(4), 763–787. <https://doi.org/10.1111/J.1741-3737.2011.00844.X>
- Haagsman, K., Mazzucato, V., & Dito, B. B. (2015). Transnational families and the subjective well-being of migrant parents: Angolan and Nigerian parents in the Netherlands. *Ethnic and Racial Studies, 38*(15), 2652–2671. <https://doi.org/10.1080/01419870.2015.1037783>
- Hamilton, T. G., Palermo, T., & Green, T. L. (2015). Health Assimilation among Hispanic Immigrants in the United States: The Impact of Ignoring Arrival-cohort Effects. *Journal of Health and Social Behavior, 56*(4), 460–477. <https://doi.org/10.1177/0022146515611179>
- Harris, R., Tobias, M., Jeffreys, M., Waldegrave, K., Karlsen, S., & Nazroo, J. (2006). Racism and health: The relationship between experience of racial discrimination and health in New Zealand. *Social Science & Medicine, 63*(6), 1428–1441. <https://doi.org/10.1016/j.socscimed.2006.04.009>
- Horton, S. (2009). A Mother's Heart is Weighed Down with Stones: A Phenomenological Approach to the Experience of Transnational Motherhood. *Culture, Medicine, and Psychiatry, 33*(1), 21–40. <https://doi.org/10.1007/s11013-008-9117-z>
- Ichou, M. (2014). Who they were there: Immigrants' educational selectivity and their children's educational attainment. *European Sociological Review, 30*(6), 750–765. <https://doi.org/10.1093/esr/jcu071>

- Jones, T. M., Nurius, P., Song, C., & Fleming, C. M. (2018). Modeling life course pathways from adverse childhood experiences to adult mental health. *Child Abuse & Neglect*, *80*, 32–40. <https://doi.org/10.1016/j.chiabu.2018.03.005>
- Karlsen, S., & Nazroo, J. Y. (2002). Relation Between Racial Discrimination, Social Class, and Health Among Ethnic Minority Groups. *American Journal of Public Health*, *92*(4), 624–631. <https://doi.org/10.2105/AJPH.92.4.624>
- Kratz, F., & Brüderl, J. (2021). *The Age Trajectory of Happiness: How Lack of Causal Reasoning has Produced the Myth of a U-Shaped Age-Happiness Trajectory*. 1–31. <https://doi.org/10.31234/osf.io/d8f2z>
- Lam, T., & Yeoh, B. S. A. (2019). Parental migration and disruptions in everyday life: Reactions of left-behind children in Southeast Asia. *Journal of Ethnic and Migration Studies*, *45*(16), 3085–3104. <https://doi.org/10.1080/1369183X.2018.1547022>
- Li, N. (2016). Multidimensionality of Longitudinal Data: Unlocking the Age-Happiness Puzzle. *Social Indicators Research*, *128*(1), 305–320. <https://doi.org/10.1007/s11205-015-1032-4>
- Luthra, R., Nandi, A., & Benzeval, M. (2020). Unravelling the ‘immigrant health paradox’: Ethnic maintenance, discrimination, and health behaviours of the foreign born and their children in England. *Journal of Ethnic and Migration Studies*, *46*(5), 980–1001. <https://doi.org/10.1080/1369183X.2018.1539287>
- Lykken, D., & Tellegen, A. (1996). Happiness Is a Stochastic Phenomenon. *Psychological Science*, *7*(3), 186–189. <https://doi.org/10.1111/j.1467-9280.1996.tb00355.x>
- Mazzucato, V. (2015). Transnational families and the well-being of children and caregivers who stay in origin countries. *Social Science & Medicine*, *132*, 208–214. <https://doi.org/10.1016/j.socscimed.2014.11.030>
- Mazzucato, V., Cebotari, V., Veale, A., White, A., Grassi, M., & Vivet, J. (2015). International parental migration and the psychological well-being of children in Ghana, Nigeria, and Angola. *Social Science & Medicine*, *132*, 215–224. <https://doi.org/10.1016/J.SOCSCIMED.2014.10.058>
- Mazzucato, V., Dito, B. bushie, Grassi, M., & Vivet, J. (2017). Transnational parenting and the well-being of Angolan migrant parents in Europe. *Global Networks*, *17*(1), 89–110. <https://doi.org/10.1111/GLOB.12132>

- McLaughlin, K. (2020). Early Life Stress and Psychopathology. In K. L. Harkness & E. P. Hayden (Eds.), *The Oxford Handbook of Stress and Mental Health* (p. 0). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190681777.013.3>
- McLeod, J. D. (1991). Childhood Parental Loss and Adult Depression. *Journal of Health and Social Behavior*, 32(3), 205–220. <https://doi.org/10.2307/2136804>
- Montazer, S. (2019). Immigration, Visible-Minority Status, Gender, and Depression. *Society and Mental Health*, 10(3), 215686931985693. <https://doi.org/10.1177/2156869319856930>
- Montazer, S., & Wheaton, B. (2011). The Impact of Generation and Country of Origin on the Mental Health of Children of Immigrants. *Journal of Health and Social Behavior*, 52(1), 23–42. <https://doi.org/10.1177/0022146510395027>
- Montazer, S., & Wheaton, B. (2017). Economic Conditions in Countries of Origin and Trajectories in Distress after Migration to Canada: Results from the National Population Health Survey. *Society and Mental Health*, 7(1), 1–20. <https://doi.org/10.1177/2156869316671372>
- Montazer, S., & Young, M. (2017). Level of economic development of the country of origin and work-to-family conflict after migration to Canada. *Social Science Research*, 63, 263–276. <https://doi.org/10.1016/j.ssresearch.2016.09.018>
- Nandi, A., Luthra, R., & Benzeval, M. (2020). When does hate hurt the most? Generational differences in the association between ethnic and racial harassment, ethnic attachment, and mental health. *Ethnic and Racial Studies*, 43(16), 1–21. <https://doi.org/10.1080/01419870.2020.1788107>
- Nobles, J., Rubalcava, L., & Teruel, G. (2015). After spouses depart: Emotional wellbeing among nonmigrant Mexican mothers. *Social Science and Medicine*, 132, 236–244. <https://doi.org/10.1016/j.socscimed.2014.11.009>
- OECD. (2013). *OECD Guidelines on Measuring Subjective Well-being*. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/economics/oecd-guidelines-on-measuring-subjective-well-being_9789264191655-en
- OECD. (2023). *Measuring Population Mental Health*. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/social-issues-migration-health/measuring-population-mental-health_5171eef8-en
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The Stress Process. *Journal of Health and Social Behavior*, 22(4), 337. <https://doi.org/10.2307/2136676>

- Poeze, M. (2019). Beyond breadwinning: Ghanaian transnational fathering in the Netherlands. *Journal of Ethnic and Migration Studies*, 45(16), 3065–3084. <https://doi.org/10.1080/1369183X.2018.1547019>
- Schaeffer, M. (2019). Social Mobility and Perceived Discrimination: Adding an Intergenerational Perspective. *European Sociological Review*, 35(1), 65–80. <https://doi.org/10.1093/esr/jcy042>
- Schilling, E. A., Aseltine, R. H., & Gore, S. (2007). Adverse childhood experiences and mental health in young adults: A longitudinal survey. *BMC Public Health*, 7(1), 30. <https://doi.org/10.1186/1471-2458-7-30>
- Shen, J., & Kogan, I. (2020). Immigrants' relative income and life satisfaction: Comparison groups from a multi-generational perspective. *Acta Sociologica*, 63(1), 82–102. <https://doi.org/10.1177/0001699319859397>
- Strandh, M., Winefield, A., Nilsson, K., & Hammarström, A. (2014). Unemployment and mental health scarring during the life course. *European Journal of Public Health*, 24(3), 440–445. <https://doi.org/10.1093/eurpub/cku005>
- Suárez-Orozco, C., Kim, H. Y., & Bang, H. J. (2011). I Felt Like My Heart Was Staying Behind: Psychological Implications of Family Separations & Reunifications for Immigrant Youth. *Journal of Adolescent Research*, 26(2), 222–257. <https://doi.org/10.1177/0743558410376830>
- Suárez-Orozco, C., Todorova, I. L. G., & Louie, J. (2002). Making up for lost time: The experience of separation and reunification among immigrant families. *Family Process*, 41(4), 625–643. <https://doi.org/10.1111/j.1545-5300.2002.00625.x>
- Tuppat, J., & Gerhards, J. (2020). Immigrants' First Names and Perceived Discrimination: A Contribution to Understanding the Integration Paradox. *European Sociological Review*. <https://doi.org/10.1093/esr/jcaa041>
- Turner, R. J., & Lloyd, D. A. (1995). Lifetime Traumas and Mental Health: The Significance of Cumulative Adversity. *Journal of Health and Social Behavior*, 36(4), 360–376. <https://doi.org/10.2307/2137325>
- Vanore, M., Mazzucato, V., & Siegel, M. (2015). 'Left behind' but not left alone: Parental migration & the psychosocial health of children in Moldova. *Social Science & Medicine*, 132, 252–260. <https://doi.org/10.1016/j.socscimed.2014.08.040>

- Vijver, F. J. R. Van De, Berry, J. W., & Celenk, O. (2016). Assessment of acculturation. In D. L. Sam & J. W. Berry (Eds.), *The Cambridge Handbook of Acculturation Psychology* (pp. 93–112). Cambridge University Press. <https://doi.org/10.1017/CBO9781316219218.007>
- Wallace, S., Nazroo, J., & Bécarea, L. (2016). Cumulative effect of racial discrimination on the mental health of ethnic minorities in the United Kingdom. *American Journal of Public Health, 106*(7), 1294–1300. <https://doi.org/10.2105/AJPH.2016.303121>
- White, A., Dito, B. B., Veale, A., & Mazzucato, V. (2019). Transnational migration, health and well-being: Nigerian parents in Ireland and the Netherlands. *Comparative Migration Studies, 7*(1), 44. <https://doi.org/10.1186/s40878-019-0147-1>
- Wu, Q., Lu, D., & Kang, M. (2015). Social capital and the mental health of children in rural China with different experiences of parental migration. *Social Science & Medicine, 132*, 270–277. <https://doi.org/10.1016/j.socscimed.2014.10.050>
- Yang, F. (2021). The “How” Question of the Healthy Immigrant Paradox: Understanding Psychosocial Resources and Demands as Pathways Linking Migration to Mental Health Risks. *Society and Mental Health, 11*(1), 69–89. <https://doi.org/10.1177/2156869320913090>
- Zhang, Y., & Zhao, M. (2021). Gender disparities and depressive symptoms over the life course and across cohorts in China. *Journal of Affective Disorders, 295*, 620–627. <https://doi.org/10.1016/j.jad.2021.08.134>
- Zhao, F., & Yu, G. (2016). Parental Migration and Rural Left-Behind Children’s Mental Health in China: A Meta-Analysis Based on Mental Health Test. *Journal of Child and Family Studies, 25*(12), 3462–3472. <https://doi.org/10.1007/s10826-016-0517-3>
- Zwysen, W., & Demireva, N. (2018). *An Examination of Ethnic Hierarchies and Returns to Human Capital in the UK. 6*(3), 6–33. <https://doi.org/10.17645/si.v6i3.1457>

CHAPTER ONE

An immigrants' paradox in mental health? A life-course approach

Abstract

Literature on immigrants' mental health identifies a paradox. As socioeconomic status and mental health are generally closely related, immigrants' mental health would be expected to broadly follow the pattern of initial disadvantage and subsequent recovery which is often found in studies on immigrants' socioeconomic trajectories. To the contrary, several studies find that immigrants often have better mental health than natives upon arrival, but lose this advantage over time. While the former is explained by positive selection into migration, the latter has been explained through cumulative exposure to disadvantage. However, literature finding support for this immigrants' paradox in mental health trajectories mostly relies on cross-sectional data, generally incurs in overcontrol bias, and fails disentangling variation with age from variation with time since arrival. In this article, using UK data from waves 1-11 of Understanding Society, I use panel data analysis to estimate immigrants-natives differences in mental health trajectories. Results indicate that immigrants' mental health trajectories in the UK do not differ significantly from those experienced by natives, and that the cross-sectional finding of immigrants' faster mental health deterioration is due to differences between immigration and birth cohorts. This leaves us with a new puzzle: (why) is being an immigrant protective for mental health?

Keywords

Mental health, life course, immigrant paradox, healthy immigrant effect

1. Introduction

It is a well-established observation in studies on immigrants' socioeconomic outcomes in destination countries that immigrants tend to be socioeconomically disadvantaged in the early months or years after arrival, and gradually improve their position in the destination country as they acquire country-specific skills over time (Chiswick et al., 2005). As socioeconomic conditions are a major determinant of mental health (Yu & Williams, 1999), the baseline expectation in studies on immigrants' mental health is that immigrants would initially have worse health than natives, and then “catch-up” with them over time, and as their socioeconomic conditions improve. To the contrary, most evidence so far has indicated that immigrants tend to have better mental health than natives upon arrival, whereas established immigrants and second generations tend to have similar or even worse mental health than natives (e.g. Dorsett, Rienzo, and Weale 2019; Montazer 2020). This finding, generally referred to as the “healthy immigrant effect” or the “immigrants’ health paradox”, has been largely documented in cross-sectional studies, but longitudinal evidence is so far limited (see Montazer and Wheaton 2017 for an exception). Thus, it is still an open question whether this “immigrants’ paradox” in mental health reflects individual-level mental health deterioration over time, or if it is rather due to differences between immigrant cohorts.

This article addresses this gap by using panel data analysis, focusing on individual-level variation, to investigate how immigrants' mental health evolves after migration, in comparison to natives' mental health trajectory over the life course. I use data from waves 1-11 of Understanding Society, also known as the UK Household Longitudinal Panel (UKHLS) (University Of Essex Institute For Social and Economic Research, 2022), using fixed- and random-effects linear regressions to estimate the mental health trajectories of immigrants and natives. The aim of this article is to provide an accurate description of differences in individual-level mental health trajectories between immigrants and natives, rather than to test which mechanisms might lead to them.

Findings do not support the hypothesis of a detrimental effect of time since arrival on immigrants' mental health: while immigrants' mental health is indeed found to deteriorate over time, this deterioration is at least not worse than that experienced by UK natives. I dedicate the last part of the article to a discussion of the possible mechanisms why this might be the case, and of the limitations of my approach.

2. Background: immigrants' mental health trajectories in destination countries

There is a growing interest in the literature on immigrants' mental health in the destination countries (e.g. Balidemaj and Small 2019). The general expectation for immigrants' mental health trajectories over time and over generations is that these would parallel the assimilation trend in socioeconomic outcomes: at first, immigrants tend to experience a disadvantage compared to natives, but gradually improve their conditions over time (e.g. Akresh 2008; Fellini and Guetto 2019) and across generations (Drouhot & Nee, 2019). This expectation is consistent with the fact that socioeconomic conditions are a major determinant of mental health (Yu & Williams, 1999). However, studies have found evidence of the opposite phenomenon: several immigrant groups in several Western destination countries have higher-than-average mental health upon arrival, whereas more established immigrants and their descendants tend to have similar or poorer mental health compared to natives without an immigration background (e.g. Dorsett et al. 2019; Holz 2021; Montazer 2018). This finding, which is consistent with trends in immigrants' physical health trajectories, has been referred to as the "healthy immigrant effect" (HIE) or the "immigrants' health paradox" (IHP), the two terms being used interchangeably. In this article, I deviate slightly from previous literature and use these two terms to indicate different elements of the phenomenon, as discussed in the following paragraph.

I use the term HIE to refer to "cross-sectional" part of the trend, that is, the initial immigrants' mental health advantage over natives. This is an outcome of their positive selection on mental health and related characteristics. This selection operates both at an individual level, the "fittest" individuals deciding to emigrate, and at an institutional level, due to receiving countries' immigration policies² (Ichou & Wallace, 2019). I instead use the term IHP to describe the "longitudinal" part of the finding, that is, immigrants' apparent mental health deterioration over time and across generations. The, at first sight, paradoxical character of this finding is the fact that the labour market position, legal status, and social integration of immigrants tend to improve over time, which should have a beneficial effect on their mental health. In addition, if immigrants tend to be in better-than-average physical and mental health at arrival, they would be expected to maintain or increase such advantage, because, as

² Immigration policies affecting immigrants' selection in mental health might include, for example, those favouring married immigrants (as married individuals tend to have better mental health than unmarried ones), or simply the complexity/instability of the visa requesting/renovating processes, that might discourage less motivated and optimistic individuals to apply in the first place.

hypothesised by the stress process (Pearlin et al., 1981) and cumulative advantage/disadvantage (e.g. Willson, Shuey, and Elder, Jr. 2007) frameworks, their initial higher mental health resources should reduce both their vulnerability to mental health damaging events and conditions, and their exposure to some of said events and conditions.

The aim of this article is to study how immigrants' mental health evolves, at the individual level, since their arrival in the destination country. Hence, my primary concern is testing whether the IHP holds at the within-individual level, or if it rather a product of differences in mental health between cohorts. Testing or explaining the HIE is beyond the scope of this article.

Different studies have adopted different definitions of the IHP. Some of them have focused on mental health trajectories of first-generation immigrants (intragenerational approach) (e.g. (Dorsett et al., 2019; Montazer, 2018, 2020; Yang, 2021), some on mental health trajectories across generations (intergenerational approach) (e.g. Dorsett et al. 2019; Montazer and Wheaton 2011). Because the aim of this article is to test the IHP in relation to individual life courses, I only consider the first definition.

Most studies adopting the intragenerational approach to the study of IHP model mental health to be linearly associated with time since migration. Such studies, partially because of data limitations, often only distinguish immigrants between “recent” and “established”, generally using 10 years since arrival in the destination country as cut-off (e.g. Dorsett et al. 2019), or simply modelling time since arrival as a continuous variable with a linear association with mental health/distress (e.g. Montazer, 2018, 2020). Instead, other studies found support for a non-linear pattern, in line with the idea of a “U-shaped” trajectory in immigrants' mental health. Some studies find that immigrants from low-GDP countries to Canada experience increases in mental distress in the first five years of their residence, and then enter a “recovery” phase, whereas other immigrants experience little or no variation in mental health in the first five years of their stay, and then a reduction of mental distress (Montazer et al., 2016; Montazer & Wheaton, 2017). Yang (2021) also finds partial support for a U-shaped pattern in the association between mental health and time since arrival, as she finds that, in Canada, the association between time since arrival and mental distress is positive (more established immigrants have higher levels of distress) up to the seventeenth year of residence, after which longer residence duration is associated with better mental health.

Beyond differences in the definition of IHP and in the modelling of the association between time since arrival and mental health, a common feature to all previous studies of immigrants'

mental health trajectories is that their analytical design is unfit to identify individual trajectories of mental health with time since arrival. Indeed, the vast majority of studies are cross-sectional, and thus unable to test whether differences between individuals are due to compositional effects (e.g. differences between birth and immigration cohorts). To the best of my knowledge, only one study, using Canadian data, has tested the IHP using panel data (Montazer & Wheaton, 2017). This study, however, does not properly disentangle variation with age from variation with time since arrival, as is discussed in section 3.3. In addition, all previous studies control for factors mediating the “effect” of time since arrival on mental health, leading to overcontrol bias.

In the next sections, I, first, discuss the methodological issues characterising previous literature on the IHP and their potential solutions. Then, I propose an analytical approach to deal with the mentioned issues.

3. Methodological issues: age-period-cohort, and time since arrival

3.1. One step back: age, cohorts and mental health

The difficulties in measuring immigrants’ mental health variation over time in the destination country, as distinct from variation with age and between cohorts, are an extension of the broader puzzle of how to disentangle age, period and cohort effects when studying mental health trajectories in the general population. In section 3.2, I will use inputs from the latter debate to identify the challenges and solutions in the measurement of immigrants’ mental health trajectories.

But first, I will briefly summarise the main findings concerning the association between age, cohorts, and mental health in the general population. Arguably the most established finding in studies on life course mental health (or happiness or life satisfaction) is that the latter follow a U-shaped curve throughout the adult life course, reaching their bottom around age 40 – what has been brought up as support for the idea of a middle-age crisis. This finding is broadly supported by cross-sectional studies across several countries (see for a review Blanchflower et al., 2023).

The longitudinal evidence is however mixed: some studies have argued that the findings of a U-curve in mental health are due to failure in disentangling age and cohort effects (Bell, 2014; Kratz & Brüderl, 2021) and to overcontrol bias (Bartram, 2020; Kratz & Brüderl, 2021) – see section 3.2 for a detailed discussion of these methodological issues. Studies adopting a within-

individual approach to the study of life-course mental health and refraining from controlling for mediating factors have often found the “U-shaped” curve to be a due to cohort differences in *levels* of mental health (Bell, 2014; Li, 2016), and that, at the within-individual level, mental health deteriorates throughout the adult life course, although more steeply in young adulthood and in old age (Bell, 2014; Frijters & Beaton, 2012; Kratz & Brüderl, 2021; Li, 2016; Zhang & Zhao, 2021). Yet, other studies have found support for the U-curve in life satisfaction trajectories even at the within-individual level (Cheng et al., 2017).

3.2. Measuring immigrants’ mental health trajectories

The main common limitation of previous studies on immigrants’ mental health trajectories in destination countries is that many of them rely on cross-sectional data. While a cross-sectional approach is valid if the aim is to describe the association between age, mental health, and immigrant status at a specific time, it cannot be used to infer how individuals’ mental health varies with age or with time since arrival. This is due to two issues: i) confounding bias, and ii) selection bias in (re)migration, mortality, and survey attrition.

The first problem, confounding bias, refers to the fact that differences in mental health between people with different age and time since arrival might be due not only to the effect of age or of time since arrival, but also to differences between birth cohorts, immigration cohorts, and between individuals who migrated at different ages. Birth cohorts differ in their average mental health because of early life experiences, that can affect individuals’ expectations and initial mental health resources. Immigrant cohorts might differ in their mental health trajectories because of their composition (in terms of gender, geographical origin, reason to migrate), and in the destination-country environment (labour market opportunities, social and legal reception, presence of a community of co-ethnics) they encountered upon arrival (cf. Hamilton, Palermo, and Green 2015). Age at immigration might also be independently associated with mental health and its development over time, because of differences in expectations and experiences that immigrants arriving at different ages might have (Montazer, 2018).

Birth cohort and age are perfectly collinear in cross-sectional data, and so are immigration cohort and time since arrival, making it impossible to estimate the effect of age net of birth cohort, or the effect of time since arrival net of that of immigration cohort. In addition, time since arrival corresponds to the difference between age and age at arrival, so that it is impossible to control for all three in the same model.

The second set of problems is bias due to selective remigration (or out-migration), mortality, and survey attrition. Immigrants have high rates of remigration, either to return to their origin country or to move to a third country (see Dustmann and Görlach 2016), which makes them much more likely to migrate out of their destination country compared to natives. In addition, remigration decisions for immigrants correlate with their socioeconomic conditions (e.g. Bijwaard, Schluter, and Wahba 2014; Caron and Ichou 2020) and physical health (e.g. Arenas et al. 2015; Lu and Qin 2014) in the destination countries, and therefore, quite likely, with their mental health. Similarly, a general issue when analysing mental health trajectories over the life course is that mental health is associated with longevity. If the association between mental health and mortality differs between immigrants and natives, this might lead to wrong conclusions about the differences in the life course trajectories between these two groups. A similar source of bias might be selective survey non-response and attrition, as both are affected by mental health-related factors, such as education, wealth, and some physical health conditions (e.g. Banks et al., 2011).

Both confounding and selection bias can be at least partially dealt with using panel data analysis. The best (although still not optimal) way to deal with selection bias is using fixed-effect panel regression, i.e. focusing exclusively on the within-individual variation. Coefficients in random-effect regressions represent a weighted average between within- and between-individual variation, and are thus biased by selective mortality and survey attrition (see e.g. Kratz and Brüderl 2021).

As for confounding bias, it is possible, in a random effects model, to estimate the effect of age net of that of birth cohort, or that of time since arrival net of that of immigration cohort. However, it is still not possible to control for all variables of interest (immigration cohort, birth cohort, age at arrival, age, and time since arrival), because of collinearity. In a fixed-effect approach, there is no need to control for time-constant characteristics such as birth cohort, immigration cohort, and age at arrival. However, it is also not possible to measure variation by age and by time since arrival at the same time, as these are perfectly collinear within individuals.

Another methodological issue found in most previous studies on immigrants' mental health trajectories is overcontrol bias, that is, controlling for variables that act as mediators in the association between age or time since arrival and mental health, such as family structure and socioeconomic status (e.g. Montazer 2018, 2020; Montazer et al. 2016). Age and time since

arrival do not *per se* have an “effect” on mental health³: mental health changes as people age (or cumulate time in the destination country) because of the cumulation of positive and negative life experiences over time (cf. Pearlin 2010). Because family and socioeconomic status are two core life domains affecting mental health, controlling for such characteristics will necessarily bias the estimated mental health trajectory with age or with time since arrival. To properly investigate mental health trajectories, we should exclusively control for characteristics affecting mental health that are prior, in this case, to migration (cf. Bartram, 2020; Kratz & Brüderl, 2021). These include gender, birth cohort, immigration cohort and, ideally, pre-migration socioeconomic conditions and mental health upon arrival. Importantly, race or ancestry should not be included as control variables, because these do not intrinsically affect mental health⁴: a large part of the association between race/ancestry and mental health is a consequence of discrimination and/or of cultural dissonance, which are, often, post-migration phenomena. Also, labour market position is not a good proxy for pre-migration socioeconomic status: immigration often comes with socioeconomic downgrading, and, although immigrants’ labour market position tends to improve with time since arrival, it rarely matches pre-migration (e.g. Fellini and Guetto 2019) or natives’ average levels (Zwysen & Demireva, 2018), especially for racialised groups.

3.3. Disentangling age and time since migration

As discussed in the paragraphs above, panel data analysis, specifically fixed-effect panel regressions, allows to study within-individual variation while minimising the bias due to confounding and to selective mortality, (re)migration and survey attrition. However, because within-individual variation over time since arrival is perfectly collinear to within-individual variation in age, it is impossible, in a fixed-effect panel regression, to study the former while controlling for the latter.

The only previous longitudinal study testing the IHP (Montazer & Wheaton, 2017) deals with this issue by comparing immigrants’ mental health trajectory with time spent in the destination

³ I will, however, refer to the “effects” of time since arrival and of age on mental health for ease of expression.

⁴ While race and/or ancestry do not affect *mental health*, they might affect its *measurement*. The measurement used in this article (SF-12 MCS, see section 4.3) has been deemed acceptable for cross-ethnic comparisons in the UK, although it resulted problematic for ethnic minority members with insufficient English language proficiency (Jenkinson et al., 2001), that is, (recent) immigrants. Therefore, controlling for race/ancestry would not correct for this measurement issue. In addition, the bias deriving from ethnic differences in the mental health reports would affect the level of mental health more than its variation, which is the focus of this article. Therefore, I consider the advantages of not including this as a control variable (that is, avoiding overcontrol bias) as outweighing the disadvantages (potential ethnic differences in mental health reporting).

country, using age at arrival as the starting point, to natives' mental health trajectory with age, starting at age 18. The issue with this approach is that immigrants vary considerably in their ages at arrival, and mental health is generally found to vary non-linearly with age, as discussed in section 3.1. Consequently, having different starting points for immigrants' and natives' mental health trajectories might lead to wrong conclusions about the differences between the two.

In this article, I propose a new approach to disentangle age and time since arrival when studying immigrants' mental health trajectories in a destination country. As in Montazer's and Wheaton's article (2017), I use natives as the control group, implying that, if since their arrival to the UK immigrants were exposed to the same contextual opportunities, stressors, and constraints as natives, the mental health trajectories with age of the two groups would be expected to not differ significantly from each other. This does not imply the assumption that immigrants would have had similar mental health trajectories as destination country natives had they never migrated or had they migrated to a different country, but merely expecting that the context of destination would affect immigrants and natives in similar ways in absence of immigrant-specific experiences such as discrimination, bureaucratic burden, or cultural dissonance.

My approach differs from other studies using natives as the control group in that I stratify the analyses by age at arrival, so that in each model the mental health trajectory of immigrants *who arrived around the same age* is compared to natives' mental health trajectory, with immigrants' age at arrival as the starting point for both trajectories. In this way, because immigrants' time since arrival corresponds to the difference between age and age at arrival, the difference between the mental health trajectories over age of immigrants and natives can be interpreted as the effect of time since arrival.

4. Data, methods and variables

4.1. Data

I use data from the first eleven waves of Understanding Society, also known as UKHLS (University of Essex, 2021), restricting the whole sample to individuals aged between 18 and 60 years old, and, concerning immigrants, to those who migrated to the UK after 18 years of age. Understanding Society is a panel survey conducted yearly in the UK since 2009. Each data collection round lasted around 2 years, and an ethnic and minority boost (EMB) and an immigrant and ethnic minority boost (IEMB) samples were introduced in waves 1 and 6,

respectively, targeting individuals with Indian, Pakistani, Bangladeshi, Black Caribbean, or Black African origins (both EMB and IEMB) and immigrants (IEMB only). While the sample is not fully representative of the immigrant population in the UK, it does not deviate excessively from this population in the distribution of educational titles, gender, and reasons to migrate (Lynn et al., 2018).

After excluding individuals aged less than 18 and more than 60, immigrants who arrived in the UK younger than 18, individuals with missing information on the relevant variables (see section 4.3 for details), individuals observed for only one year, and individuals who did not participate in wave 6, the full analytical sample is composed of 24205 individuals (of which 2647 immigrants) and 180538 person-years (16470 immigrant-years).

4.2. Methods

4.2.1. Part one: replication of previous literature's results

The analyses are structured in three parts. In the first part of the analyses, I use a design similar to the most common analytical strategy adopted by cross-sectional studies on the topic: using a random effects model, I investigate the association between mental health and immigrants' years since arrival to the UK using natives as the reference group. The control variables included in the model are age (squared), gender, birth cohort, educational qualifications and first job.

4.2.2. Part two: mental health trajectories from age at arrival to age 60

In the second part of the analyses, I use an alternative method to estimate the effect of length of stay on immigrants' mental health, based on the approach exposed in section 3.3: I use fixed-effects models to compare immigrants' and natives' mental health trajectories from immigrants' age of arrival to age 60. In this part I run two sets of models. In the first (set A), I restrict the immigrants' sample to those migrated between age 18 and 24 (35% of the immigrants in the sample). In the second (set B), I restrict the immigrants' sample to those arrived between 25 and 34 years of age (46% of the immigrants in the sample), and the whole sample to individuals older than 25. For comparison, I run similar models using random-effects panel regressions controlling for gender, educational level and first job.

In this way, within each set, age and time since arrival are almost collinear for immigrants: for example, in set A, immigrants aged 40 have lived in the UK for between 22 and 16 years, while in set B, for between 15 and 6 years. If time since arrival is detrimental to mental health, I should find that age has a stronger negative (or weaker positive) effect for immigrants than for

natives. If this is not the case, previous literature's results might be biased due to differences between birth and/or immigration cohorts, to overcontrol, or to selection. I run two sets of additional analyses: first, stratifying the analyses by main race/ancestry groups and by gender (ref. Appendix B), second, including controls for mediating factors (race/ancestry, employment status, marital status and number of children in the household) (ref. Appendix D). The results presented in the main text hold for all considered race/ethnicity groups, for both men and women, and after controlling for the potential mediating factors.

4.2.3. Part three: mental health trajectories by birth cohort

The second part of the analyses (described above) provides an overview of the mental health trajectories of immigrants and natives from age 18(25) to age 60. However, each individual in the sample is observed for a maximum of eleven times (the median being 8 observations for natives and 6 for immigrants, ref. Table A1). Thus, different segments of the mental health trajectories described in the second part of the analyses are based on information from individuals born and migrated in different years. For example, in set A (immigrants who migrated between age 18 and age 24), individuals aged 25 were born between the years 1983 and 1995 and migrated (when applicable) between 2001 and 2015, whereas individuals aged 55 were born between 1953 and 1965 and migrated between 1973 and 1989.

To be able to observe potential differences in levels and trajectories of mental health between birth- and immigration- cohorts, in the third part of the analyses I use a method that has been previously used to investigate life-course differences in health by education (Leopold and Leopold, 2018): I use hierarchical linear models with random intercepts and random slopes for age to estimate the variation of mental health by age, interacted with birth cohort (categorical), and with immigrant status. The same models are replicated using fixed-effects panel regressions.

4.2.4. Weights

The UKHLS is designed to be used with weights. Therefore, all the analyses are weighted using cross-sectional weights provided for wave 6, the wave in which many immigrants were added to the survey sample. These weights compensate for the complex sampling design of the survey, in which some groups and some geographical regions are overrepresented, for selection into non-response, and for attrition since wave 1. These weights do not correct for selective attrition since wave 6 or missingness in the target variables, which can be an issue especially for the immigrants in the sample. However, while using longitudinal weights would correct for selective attrition, it would also imply considering only individuals who participated to all the

data collection waves, and result in having too few and selected immigrants in the final sample to have any meaningful analysis. Further analyses (reported in Appendix C) indicate that immigrants have higher rates of attrition and of missingness in the mental health variables compared to natives, especially when considering only individuals with poor mental health in wave 1. While this is a problem in setups using cross-sectional analyses or random-effects regressions, it would only bias results in fixed-effects regressions if the *variation* in mental health were differently associated with missingness and attrition between immigrants and natives. Based on the information available, I do not find a difference between immigrants and natives in the association between mental health variation over time and attrition (analyses reported in Appendix C).

4.3. Variables

The dependent variable is *mental health*, measured through the SF-12 mental health component, ranging from 0 (worst) to 100 (best). The SF-12 is a 12-items battery including questions about physical and mental health and how these have affected the respondent's life in the four weeks prior to the interview. Items related to mental health include (how much of the time in the past four weeks...): "have you accomplished less than you would like as a result of any emotional problems, such as feeling depressed or anxious?", "have you felt calm and peaceful?", "did you have a lot of energy?", "have you felt downhearted and depressed?" and "has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives)?" The answer options range from 1 "All of the time" to 4 "A little of the time". The SF-12 questionnaire was administered at each wave of data collection, except in wave 6 to IEMB respondents.

The main explanatory variables are those indicating the respondents' time since arrival, age and whether they are immigrants. *Time since arrival* is only used in the first part of the analysis, and it is a categorical variable with natives as the reference category, and five categories for immigrants' length of stay: 0-4, 5-9, 10-14, 15-19 and 20 and more years. *Age* is modelled as having a quadratic effect on mental health. In the third part of the analysis, the *age* variable is recoded so that 0 corresponds the youngest age for the birth cohort: 0 corresponds to 18 (in set B, 25) for those born between 1985 and 2002 (in set B, between 1985 and 1995), 25 for those born between 1975 and 1984, 35 for those born between 1965 and 1974, and 45 for those born between 1948 and 1965. *Immigrant* is a dichotomous variable. As previously mentioned, this variable indicates all immigrants who arrived in the UK at 18 years old or older in the first part

of the analyses. In the second and third parts, it refers to immigrants who arrived in the UK between the ages of 18 and 24 (Set A), or between the ages of 25 and 34 (Set B).

Finally, sex, birth cohort, educational level and first job are used as control variables in all the random effects models. *Sex* is a dichotomous variable, coded at time-constant based on respondents' answer in the first available data collection. *Birth cohort* is used as a continuous variable in the first and second parts of the analyses (centred on 1980), and grouped into six categories in the third part in set A, and five in set B. The categories are (born between) 1948-1964, 1965-1974, 1975-1984, 1985-2002 (1985-1995 for set B). *Educational level* is a categorical variable indicating whether the highest educational qualification attained is tertiary, lower than tertiary, secondary, or lower than secondary. *First job* is a categorical variable indicating the SOC-10 major group of the first job ever held by the respondent (in any country), with an additional category for respondents who never had a job (NA). The full group names are: managers; directors and senior officials; professional occupations; associate professional and technical occupations; administrative and secretarial occupations; skilled trades occupations; caring, leisure and other service occupations; sales and customer service occupations; process, plant and machine operatives; elementary occupations.

The summary statistics of the relevant variables are presented in Table A1 in Appendix A separately by migration status (native or immigrant) and age at arrival/age range (all, set A, set B).

5. Results

1 presents the results from the random effects regression of mental health on immigrants' time since arrival (natives being the reference category), net of age, gender, birth cohort, educational level and first job. The full model is reported in Table A2 in Appendix. This model supports both the HIE and the IHP: recent immigrants have a mental health advantage over natives, and the longer the time since arrival, the smaller the advantage. While the mental health advantage of immigrants compared to natives, net of the controlled characteristics, amounts to 2.9 points in the SF12 MCS for immigrants who arrived in the UK in the four years prior to the interview, the same advantage is only of 0.8 points for immigrants who spent more than 20 years in the UK.

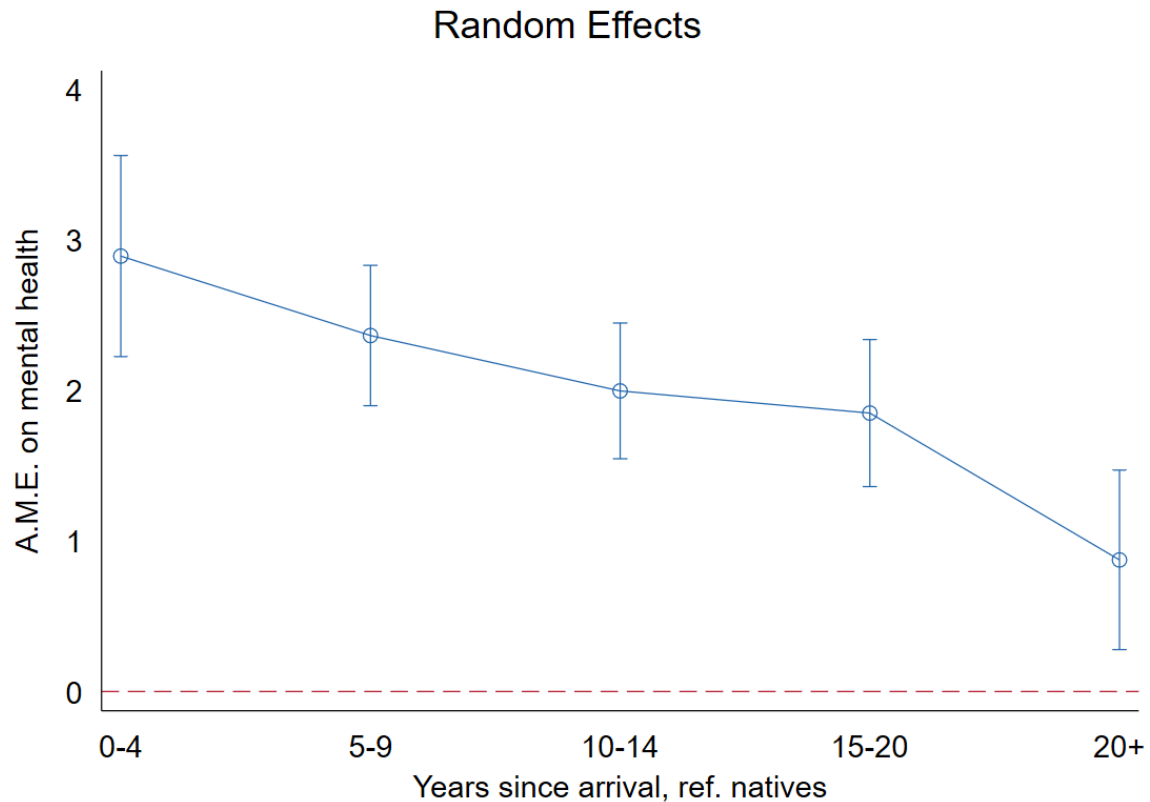


Figure 1 Predicted effects of immigrants' years of residence in the UK on mental health, natives as reference. The model controls for gender, age (squared), birth cohort, educational level and first job. UKHLS waves 1-11. Full model in Table A2

Moving to the second part of the analysis, Figure 2 shows results for set A (comparison between natives and immigrants migrated aged 18-24). Neither the random- nor the fixed- effects models report statistically significant differences in the mental health trajectories of immigrants and natives (cf. the first two models in Table A3 in Appendix A). While in the random-effects model (left panel in Figure 2) at least the direction of the effects seems to be in line with the one presented in Figure 1, in the fixed-effects model (right panel in Figure 2) immigrants' mental health is predicted to deteriorate *less quickly* than natives', although the difference in the association of age and mental health between immigrants and natives is only statistically significant at the 90% threshold (cf. Table A3, second model). So, if we defined the effect of time since arrival as the difference in the mental health trajectory with age between immigrants and natives, we would conclude that time since arrival has a null effect of immigrants' mental health – or even a positive one.

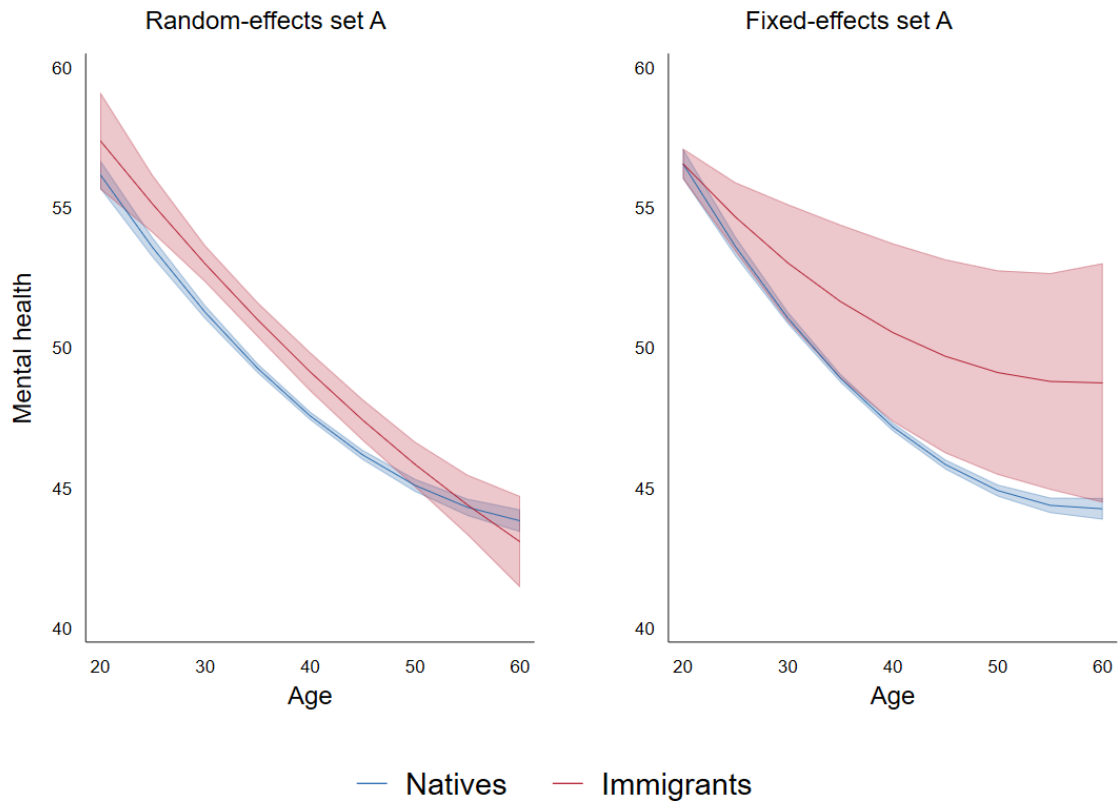


Figure 2. Linear estimate of mental health over age, by immigrant status. The random-effects model (left) controls for gender, birth cohort, educational level and first job. Results for set A: the age range is 18-60 and immigrants arrived between 18 and 24. UKHLS waves 1-11. Full models in Table A3 (first and second models).

The results for set B, graphically presented in Figure 3, mostly confirm those from set A. In the random-effects model (left panel in Figure 3), immigrants are found to have substantially and statistically significantly better mental health, on average, compared to natives when they are young and recently arrived, but then they seem to gradually lose this advantage over time, although the difference between immigrants and natives in the association between age (and age squared) and mental health is not statistically significant (cf. Table A3, third model). Results from the fixed-effects model (right panel in Figure 3) do not support the idea of a faster mental health deterioration for immigrants compared to natives, rejecting the IHP hypothesis.

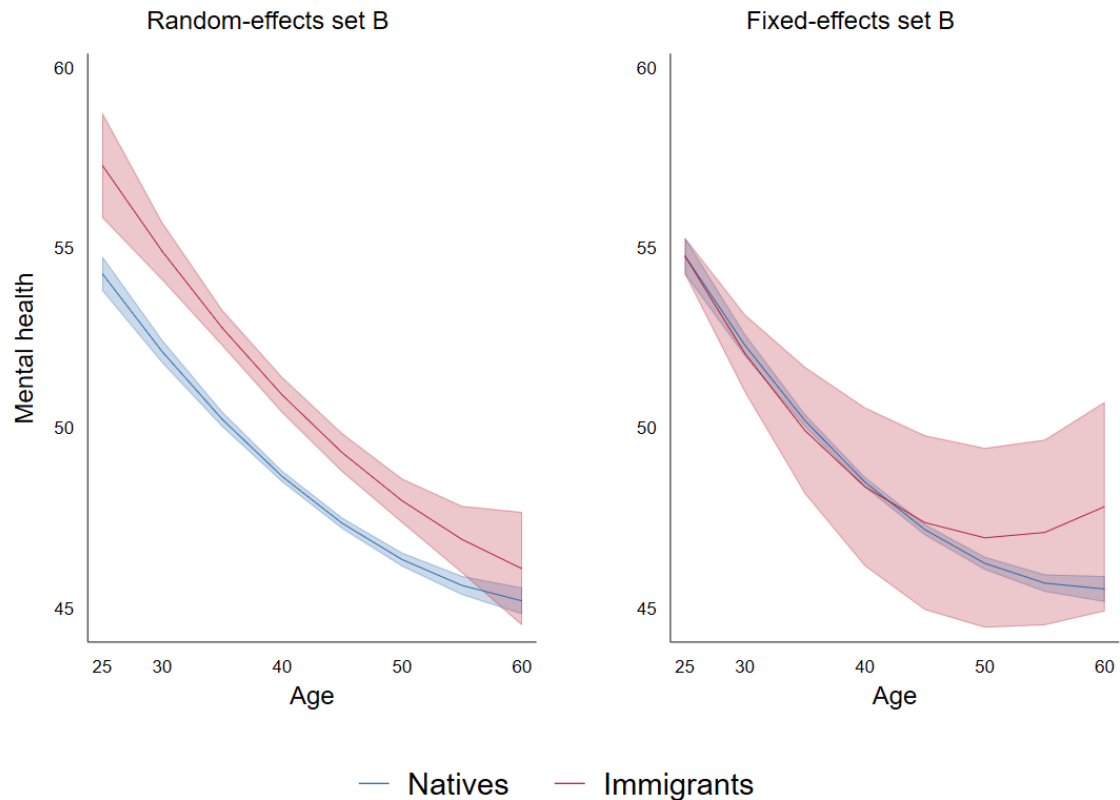


Figure 3. Linear estimates of mental health over age, by immigrant status. The random-effects model (left) controls for gender, birth cohort, educational level and first job. Results for set B: the age range is 25-60 and immigrants arrived between 25 and 35. UKHLS waves 1-11. Full models in Table A3 (third and fourth models).

Figure 4 presents the results of the random-effects regression of mental health on the interaction between age, birth cohort, and immigrant status for set A. The model supports the HIE, as immigrants from the most recent birth (and thus immigration) cohort have generally better mental health than comparable natives (cf. Table A4, first model). The model also supports the findings of the fixed-effects model for set A (cf. Figure 2, right panel), as UK natives born between 1985 and 2002 are found to experience substantially steeper mental health deterioration with age compared to their immigrant peers. This difference in the steepness of mental health deterioration between immigrants and natives born between 1985 and 2002 is not statistically significant in the random effects model (cf. Table A4, first model), but statistically significant at the 95% threshold in the fixed-effects one (cf. Table A4, second model).

Within the older birth cohorts, the association between age and mental health does not differ between natives and immigrants. However, immigrants born between 1948 and 1964, who migrated between the 60s and the 80s, have on average (slightly and non-significantly) worse

mental health than similarly aged UK natives, which leads to the seemingly steeper mental health decline for immigrants compared to natives in models not fully disentangling between- and within- individual associations between age and mental health (ref. Figure 1 and left-hand side of Figure 2).

The worse mental health of established immigrants compared to natives and to more recent immigrants could be due to at least three mechanisms: first, these immigrants might already have had worse mental health than natives when they migrated to the UK, and then did not experience improvements in their mental health with time since arrival; second, they might have experienced steeper mental health deterioration than their native peers, and then their mental health stabilised; third, the more mentally healthy individuals of this immigration cohort might have returned to their origin country or migrated to third countries, so that only those with poor mental health are left in the UK. In any case, there is no indication that the younger cohorts of immigrants will end up having worse average mental health than the UK natives of their birth cohort.

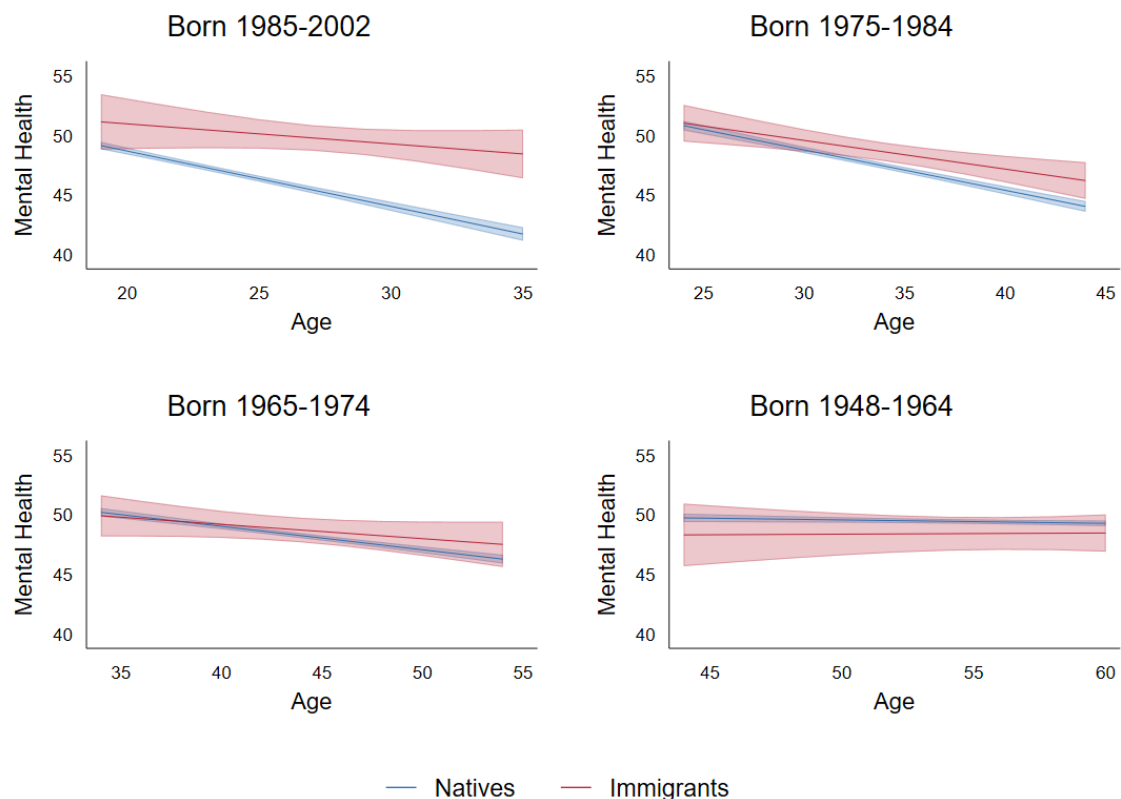


Figure 4. Linear estimates of mental health over age, by immigrant status and birth cohort. The model controls for gender, educational level, and first job. Results for set A: the age range is 18-60 and immigrants arrived between 18 and 24. UKHLS waves 1-11. Full models in Table A4 (first and second columns).

Results for set B (Figure 5) again mostly confirm previous results. More recent immigrants have on average better mental health than similarly aged natives, while immigrants who were born between the 40s and 70s have on average similar or worse mental health compared to natives. Also similarly to the results for set B, mental health trajectories with age are mostly similar between immigrants and natives born in all but the youngest cohort, in which immigrants have substantially, but not statistically significantly (cf. Table A4, third and fourth models), less steep mental health deterioration with age compared to natives.

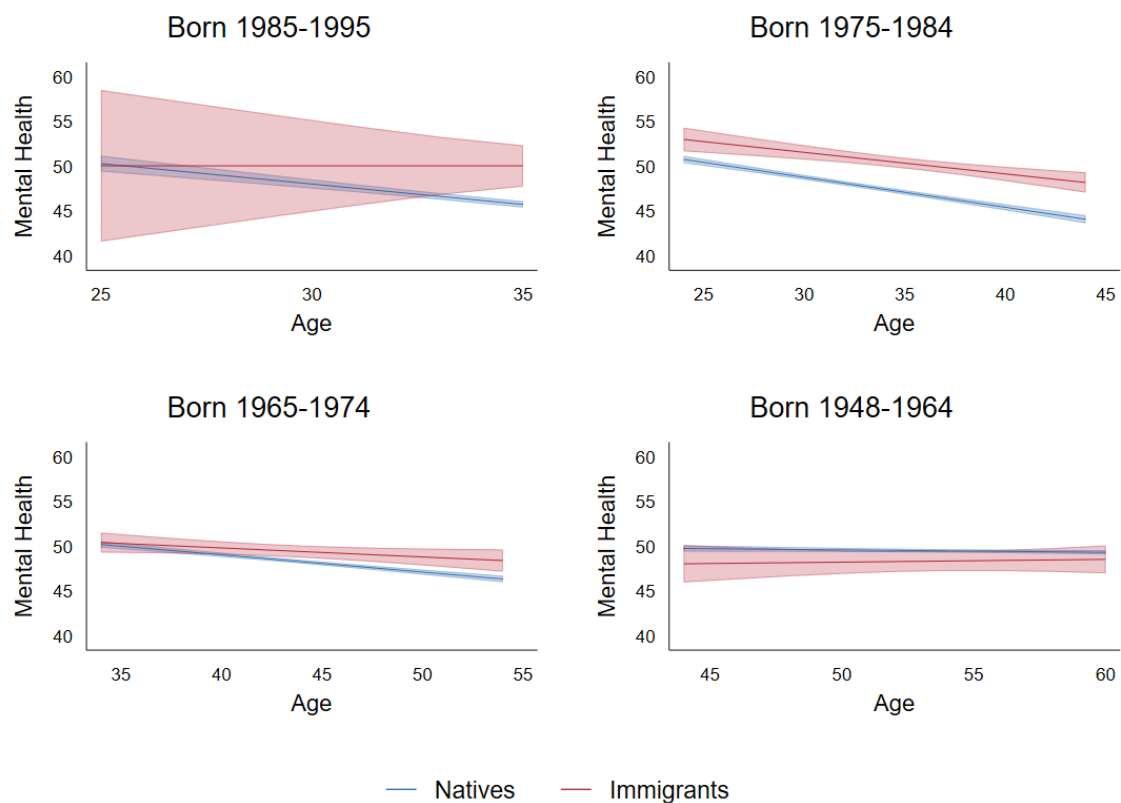


Figure 5 Linear estimates of mental health over age, by immigrant status and birth cohort. The model controls for gender, educational level, and first job. Results for set B: the age range is 25-60 and immigrants arrived aged between 25 and 34. UKHLS waves 1-11. Full models in Table A4 (third and fourth models).

6. Discussion and conclusions

Evidence for the immigrants' paradox in mental health, or IHP, has so far almost exclusively been based on cross-sectional studies and on analytical setups not able to disentangle within-individual from between-individual variation in mental health, nor variation with age from that with time since arrival. In this article, I have attempted to fill these gaps in the literature by using panel data from the UK and an analytical design primarily aimed at investigating within-individual variation in mental health, while proposing a new approach to account for typical

age trajectories in the destination country while studying immigrants' mental health trajectories with time since arrival in the destination country.

I have found that recent immigrants to the UK tend to have a mental health advantage over natives, whereas immigrants who spent more years in the UK tend to have similar or worse mental health than natives, in line with the HIE and IHP hypotheses. However, this seems to be due to differences in mental health between birth and immigration cohorts, rather than to a detrimental effect of time since arrival on mental health. This result potentially shifts the focus for future research on immigrants' mental health trajectories. Previous literature has been trying to explain the apparently stronger mental health deterioration for immigrants than for natives through higher exposure to disadvantages, such as ethnic/racial discrimination and harassment (Nandi et al., 2020; Wallace et al., 2016), economic insecurity and failed expectations (Engzell & Ichou, 2020; Shen & Kogan, 2020), increased family conflict due to economic stress (Montazer & Young, 2017) and dissonant acculturation (Giguère et al., 2010). Based on this article's results, a new question might be: if immigrants tend to be more exposed to stressful life events and conditions than natives, how come their mental health seems to deteriorate at most at the same pace as that of natives? In the following paragraph, I discuss the possible mechanisms leading to this finding.

According to the stress process model (Pearlin et al., 1981) and to the cumulative advantage/disadvantage framework (e.g. Pearlin 2010; Willson et al. 2007), life course inequalities in mental health (or in mental distress) depend mainly on two factors: exposure to stress sources, such as specific events or prolonged life conditions; and availability of resources, such as coping and social support, that can reduce vulnerability to said exposure. Thus, while immigrants are more likely to experience some mental health-deteriorating events and conditions, they might be less vulnerable to them than natives, due to their positive selection in mental health (the HIE), or to resources such as community support. In addition, immigrants might be more exposed to some mental health-promoting events and conditions (e.g. close family ties, birth of children), and/or have higher mental health gains from those, compared to natives, possibly because of cultural differences in the relevance of different life domains (work, family, religion) for one's well-being.

Another important finding that deserves further investigation in literature is that different birth and immigration cohorts are characterised by different levels of mental health. As mentioned in the results section, this might be due to differences, between immigration cohorts, in mental

health at arrival or in the reception contexts affecting post-migration mental health trajectories, but also to selective return or onward migration or mortality. These mechanisms could not be investigated in this article, due to its reliance on data covering a relatively short time period and in which immigrants' mental health levels upon arrival are seldom observed.

Something important to keep in mind is that the analytical approach used in this article uses natives' mental health trajectories with age as baseline for those of immigrants, thus allowing to identify the "effect" of time since arrival as the difference in age trajectories between immigrants (who migrated around a certain age) and natives. The advantages of this approach are that (a) it allows to identify a control group within the data that are generally available and (b) it allows to assess whether life *in the destination country* is particularly challenging for immigrants' emotional wellbeing, or if it is simply detrimental for everyone's mental health, although perhaps for partially different reasons depending on migration status.

However, a *different* research question would be whether migration tends to improve or to damage an individual's mental health, relative to staying in their origin country. The only appropriate way to answer this question would be to compare immigrants not to natives in their country of destination, but to non-migrants with similar characteristics in their countries of origin. Indeed, mental health trajectories are shaped by the context in which individuals live, as the latter determines the timing and type of, and risks of exposure to, the life events and conditions affecting mental health over the life course.

This article contributes to the literature on the immigrants' paradox in mental health by adopting a longitudinal approach focused on within individual variation, and by proposing a new approach to disentangle variation with age from that with time since arrival. However, it has important methodological limitations. The first is that, as previously mentioned, the relatively small sample number for immigrants did not allow to weight the analyses for attrition.

Another important limitation of this article is that it does not entirely compare immigrants with natives *with similar (initial) characteristics*. As immigrants are not a random sample of their origin society (cf. Borjas 1987), we should not, ideally, compare them to a random sample of their destination one. Given that immigrants tend to have an initial advantage over natives in terms of mental health (the HIE), we should compare them to a similarly positively selected group of natives – that is, to a group of natives that had similar levels of mental health as

immigrants when they arrived in the UK. If such an analysis were possible⁵, we might find that immigrants do, in fact, experience steeper mental health deterioration than comparable natives as they age. This is, however, a question for future research.

A concluding remark is that, by saying that immigrants might have specific resources that enable them to maintain relatively good levels of mental health despite their exposure to a vast array of mental health damaging conditions and experiences, I do not mean to understate the gravity of such conditions and experiences. Rather, I think that the results of this article should be a reminder that it is wrong to (implicitly) assume an immigrant disadvantage whenever we look at immigrants-natives differences in a certain outcome, which is what we often do when referring to immigrants' advantages as "paradoxes". Indeed, a striking result from this article is that UK natives, who are not in the most part exposed to stressful experiences such as racial discrimination/harassment and acculturative stress, still experience strong mental health deterioration as they age, with the young generations faring worse than the older ones.

References

- Akresh, I. R. (2008). Occupational trajectories of legal US immigrants: Downgrading and recovery. *Population and Development Review*, 34(3), 435–456. <https://doi.org/10.1111/j.1728-4457.2008.00231.x>
- Arenas, E., Goldman, N., Pebley, A. R., & Teruel, G. (2015). Return Migration to Mexico: Does Health Matter? *Demography*, 52(6), 1853–1868. <https://doi.org/10.1007/S13524-015-0429-7>
- Balidemaj, A., & Small, M. (2019). The effects of ethnic identity and acculturation in mental health of immigrants: A literature review. *International Journal of Social Psychiatry*, 65(7–8), 643–655. <https://doi.org/10.1177/0020764019867994>
- Banks, J., Muriel, A., & Smith, J. P. (2011). Attrition and health in ageing studies: Evidence from ELSA and HRS. *Longitudinal and Life Course Studies*, 2(2). <https://doi.org/10.14301/lcs.v2i2.115>
- Bartram, D. (2020). Age and Life Satisfaction: Getting Control Variables under Control. *Sociology*, 55(2), 421–437. <https://doi.org/10.1177/0038038520926871>

⁵ This is not possible with the data used in this article, as only few immigrants are observed in the first years of their residence in the UK, and retrospective information is not available (and cannot be reliably measured) for mental health.

- Bell, A. (2014). Life-course and cohort trajectories of mental health in the UK, 1991–2008 – A multilevel age–period–cohort analysis. *Social Science & Medicine*, 120, 21–30. <https://doi.org/10.1016/j.socscimed.2014.09.008>
- Bijwaard, G. E., Schluter, C., & Wahba, J. (2014). The Impact of Labor Market Dynamics on the Return Migration of Immigrants. *The Review of Economics and Statistics*, 96(3), 483–494. https://doi.org/10.1162/REST_A_00389
- Blanchflower, D. G., Graham, C., & Piper, A. (2023). HAPPINESS AND AGE—RESOLVING THE DEBATE. *National Institute Economic Review*, 1–18. <https://doi.org/10.1017/nie.2023.1>
- Boreham, R. (2012). *Understanding Society W2 Technical Report*.
- Borjas, G. J. (1987). Self-Selection and the Earnings of Immigrants. *American Economic Association*, 77(4), 531–553.
- Caron, L., & Ichou, M. (2020). High Selection, Low Success: The Heterogeneous Effect of Migrants' Access to Employment on Their Remigration. *International Migration Review*, 54(4), 1104–1133. <https://doi.org/10.1177/0197918320904925>
- Cheng, T. C., Powdthavee, N., & Oswald, A. J. (2017). Longitudinal Evidence for a Midlife Nadir in Human Well-Being: Results from Four Data Sets. *The Economic Journal*, 127(599), 126–142. <https://doi.org/10.1111/ecoj.12256>
- Chiswick, B. R., Lee, Y. L., & Miller, P. W. (2005). A longitudinal analysis of immigrant occupational mobility: A test of the immigrant assimilation hypothesis. *International Migration Review*, 39(2), 332–353. <https://doi.org/10.1111/j.1747-7379.2005.tb00269.x>
- Dorsett, R., Rienzo, C., & Weale, M. (2019). Intergenerational and interethnic mental health: An analysis for the United Kingdom. *Population, Space and Place*, 25(2), e2195. <https://doi.org/10.1002/psp.2195>
- Drouhot, L. G., & Nee, V. (2019). Assimilation and the Second Generation in Europe and America: Blending and Segregating Social Dynamics Between Immigrants and Natives. *Annu. Rev. Sociol.*, 45, 177–199. <https://doi.org/10.1146/annurev-soc-073117>
- Dustmann, C., & Görlach, J. S. (2016). The Economics of Temporary Migrations. *Journal of Economic Literature*, 54(1), 98–136. <https://doi.org/10.1257/JEL.54.1.98>

- Engzell, P., & Ichou, M. (2020). Status Loss: The Burden of Positively Selected Immigrants. *International Migration Review*, 54(2), 471–495. <https://doi.org/10.1177/0197918319850756>
- Fellini, I., & Guetto, R. (2019). A “U-Shaped” Pattern of Immigrants’ Occupational Careers? A Comparative Analysis of Italy, Spain, and France. *International Migration Review*, 53(1), 26–58. <https://doi.org/10.1177/0197918318767931>
- Frijters, P., & Beaton, T. (2012). The mystery of the U-shaped relationship between happiness and age. *Journal of Economic Behavior & Organization*, 82(2), 525–542. <https://doi.org/10.1016/j.jebo.2012.03.008>
- Giguère, B., Lalonde, R., & Lou, E. (2010). Living at the Crossroads of Cultural Worlds: The Experience of Normative Conflicts by Second Generation Immigrant Youth. *Social and Personality Psychology Compass*, 4(1), 14–29. <https://doi.org/10.1111/j.1751-9004.2009.00228.x>
- Hamilton, T. G., Palermo, T., & Green, T. L. (2015). Health Assimilation among Hispanic Immigrants in the United States: The Impact of Ignoring Arrival-cohort Effects. *Journal of Health and Social Behavior*, 56(4), 460–477. <https://doi.org/10.1177/0022146515611179>
- Holz, M. (2021). Health inequalities in Germany: Differences in the ‘Healthy migrant effect’ of European, non-European and internal migrants. *Journal of Ethnic and Migration Studies*, 1–22. <https://doi.org/10.1080/1369183X.2021.1901675>
- Ichou, M., & Wallace, M. (2019). The Healthy Immigrant Effect: The role of educational selectivity in the good health of migrants. *Demographic Research*, 40, 61–94. <https://doi.org/10.4054/DEMRES.2019.40.4>
- Jenkinson, C., Chandola, T., Coulter, A., & Bruster, S. (2001). An assessment of the construct validity of the SF-12 summary scores across ethnic groups. *Journal of Public Health*, 23(3), 187–194. <https://doi.org/10.1093/PUBMED/23.3.187>
- Kratz, F., & Brüderl, J. (2021). *The Age Trajectory of Happiness: How Lack of Causal Reasoning has Produced the Myth of a U-Shaped Age-Happiness Trajectory*. 1–31. <https://doi.org/10.31234/osf.io/d8f2z>
- Li, N. (2016). Multidimensionality of Longitudinal Data: Unlocking the Age-Happiness Puzzle. *Social Indicators Research*, 128(1), 305–320. <https://doi.org/10.1007/s11205-015-1032-4>

- López Ulloa, B. F., Møller, V., & Sousa-Poza, A. (2013). How Does Subjective Well-Being Evolve with Age? A Literature Review. *Journal of Population Ageing*, 6(3), 227–246. <https://doi.org/10.1007/s12062-013-9085-0>
- Lu, Y., & Qin, L. (2014). Healthy migrant and salmon bias hypotheses: A study of health and internal migration in China. *Social Science & Medicine*, 102, 41–48. <https://doi.org/10.1016/J.SOCSCIMED.2013.11.040>
- Lynn, P., Nandi, A., Parutis, V., & Platt, L. (2018). Design and implementation of a high-quality probability sample of immigrants and ethnic minorities: Lessons learnt. *Demographic Research*, 38(1), 513–548. <https://doi.org/10.4054/DemRes.2018.38.21>
- Montazer, S. (2018). Economic Development of Origin-countries, Life-stage at Immigration, and Length of Residence Effects on Psychological Distress. *Social Currents*, 5(6), 583–604. <https://doi.org/10.1177/2329496518780922>
- Montazer, S. (2020). Immigration, Visible-Minority Status, Gender, and Depression. *Society and Mental Health*, 10(3), 218–236. <https://doi.org/10.1177/2156869319856930>
- Montazer, S., & Wheaton, B. (2011). The Impact of Generation and Country of Origin on the Mental Health of Children of Immigrants. *Journal of Health and Social Behavior*, 52(1), 23–42. <https://doi.org/10.1177/0022146510395027>
- Montazer, S., & Wheaton, B. (2017). Economic Conditions in Countries of Origin and Trajectories in Distress after Migration to Canada: Results from the National Population Health Survey. *Society and Mental Health*, 7(1), 1–20. <https://doi.org/10.1177/2156869316671372>
- Montazer, S., Wheaton, B., & Noh, S. (2016). Economic development of countries of origin and distress among married immigrant men and women in Toronto. *Social Science Journal*, 53(4), 534–544. <https://doi.org/10.1016/j.soscij.2016.04.005>
- Montazer, S., & Young, M. (2017). Level of economic development of the country of origin and work-to-family conflict after migration to Canada. *Social Science Research*, 63, 263–276. <https://doi.org/10.1016/j.ssresearch.2016.09.018>
- Nandi, A., Luthra, R., & Benzeval, M. (2020). When does hate hurt the most? Generational differences in the association between ethnic and racial harassment, ethnic attachment, and mental health. *Ethnic and Racial Studies*, 43(16), 1–21. <https://doi.org/10.1080/01419870.2020.1788107>

- Pearlin, L. I. (2010). The life course and the stress process: Some conceptual comparisons. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences*, 65 B(2), 207–215. <https://doi.org/10.1093/geronb/gbp106>
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The Stress Process. *Journal of Health and Social Behavior*, 22(4), 337. <https://doi.org/10.2307/2136676>
- Shen, J., & Kogan, I. (2020). Job Loss or Income Loss: How the Detrimental Effect of Unemployment on Men’s Life Satisfaction Differs by Immigration Status. *Frontiers in Sociology*, 5, 10. <https://doi.org/10.3389/fsoc.2020.00010>
- University Of Essex Institute For Social and Economic Research. (2022). *Understanding Society: Waves 1-11, 2009-2020 and Harmonised BHPS: Waves 1-18, 1991-2009. [Data collection]. 15th Edition. UK Data Service. SN: 6614 (15th Edition) [dataset]. UK Data Service.* <https://doi.org/10.5255/UKDA-SN-6614-16>
- Wallace, S., Nazroo, J., & Bécaries, L. (2016). Cumulative effect of racial discrimination on the mental health of ethnic minorities in the United Kingdom. *American Journal of Public Health*, 106(7), 1294–1300. <https://doi.org/10.2105/AJPH.2016.303121>
- Willson, A. E., Shuey, K. M., & Elder, Jr., G. H. (2007). Cumulative Advantage Processes as Mechanisms of Inequality in Life Course Health. *American Journal of Sociology*, 112(6), 1886–1924. <https://doi.org/10.1086/512712>
- Yang, F. (2021). The “How” Question of the Healthy Immigrant Paradox: Understanding Psychosocial Resources and Demands as Pathways Linking Migration to Mental Health Risks. *Society and Mental Health*, 11(1), 69–89. <https://doi.org/10.1177/2156869320913090>
- Yu, Y., & Williams, D. R. (1999). Socioeconomic Status and Mental Health. In C. S. Aneshensel & J. C. Phelan (Eds.), *Handbook of the Sociology of Mental Health* (pp. 151–166). Springer. https://doi.org/10.1007/0-387-36223-1_8
- Zhang, Y., & Zhao, M. (2021). Gender disparities and depressive symptoms over the life course and across cohorts in China. *Journal of Affective Disorders*, 295, 620–627. <https://doi.org/10.1016/j.jad.2021.08.134>
- Zwysen, W., & Demireva, N. (2018). An Examination of Ethnic Hierarchies and Returns to Human Capital in the UK. *Social Inclusion*, 6(3), 6–33. <https://doi.org/10.17645/si.v6i3.1457>

7. Appendix A – Complementary tables

Table A1 Summary statistics by immigrant status and age at arrival, weighted. First observation with complete information for each respondent. UKHLS waves 1-11

	Natives				Immigrants					
	All / Set A		Set B		All		Set A		Set B	
	Mean	S.d.	Mean	S.d.	Mean	S.d.	Mean	S.d.	Mean	S.d.
SF-12 MCS	49.5	9.8	49.2	9.9	50.85	9.02	49.72	9.62	51.31	8.62
<i>min and max values</i>	<i>1.59</i>	<i>73.7</i>	<i>1.59</i>	<i>72.8</i>	<i>0.45</i>	<i>73</i>	<i>0.45</i>	<i>70.45</i>	<i>12.69</i>	<i>72.54</i>
Years since arrival										
0 to 4					0.30		0.18		0.33	
5 to 9					0.33		0.31		0.33	
10 to 14					0.15		0.17		0.16	
15 to 20					0.10		0.12		0.10	
More than 20					0.11		0.21		0.09	
Age	37.4	12.9	40.4	10.8	37.64	9.08	33.91	9.68	36.82	7.10
<i>min and max values</i>	<i>18</i>	<i>60</i>	<i>25</i>	<i>60</i>	<i>18</i>	<i>59</i>	<i>18</i>	<i>59</i>	<i>25</i>	<i>59</i>
Woman	0.52		0.53		0.57		0.64		0.53	
Birth Cohort										
1985-02	0.24		0.14		0.10		0.22		0.05	
1975-84	0.18		0.21		0.39		0.45		0.46	
1965-74	0.24		0.27		0.31		0.18		0.37	
1948-64	0.34		0.38		0.20		0.15		0.12	
Education										
Tertiary	0.20		0.25		0.39		0.38		0.42	
Less than tertiary	0.10		0.11		0.22		0.20		0.22	
Secondary	0.21		0.16		0.15		0.21		0.13	
Lower	0.48		0.48		0.24		0.21		0.22	
First Job										
NA	0.77		0.72		0.60		0.63		0.60	
Managers	0.00		0.00		0.02		0.01		0.02	
Professionals	0.03		0.03		0.10		0.06		0.11	
Technicians	0.02		0.02		0.05		0.03		0.06	
Administrative	0.04		0.04		0.05		0.05		0.05	
Skilled trades	0.03		0.04		0.04		0.03		0.04	
Service	0.02		0.02		0.02		0.02		0.02	
Sales	0.03		0.04		0.04		0.04		0.04	
Operatives	0.01		0.02		0.02		0.03		0.01	
Elementary	0.05		0.06		0.06		0.10		0.05	
Observations per individual										

2	0.05	0.06	0.09	0.08	0.07
3	0.05	0.06	0.07	0.07	0.06
4	0.06	0.05	0.08	0.08	0.08
5	0.07	0.07	0.11	0.11	0.11
6	0.09	0.08	0.08	0.08	0.08
7	0.09	0.09	0.09	0.08	0.08
8	0.09	0.09	0.10	0.10	0.10
9	0.12	0.12	0.10	0.10	0.11
10	0.18	0.18	0.12	0.12	0.14
11	0.20	0.20	0.16	0.19	0.16
Wave of first complete interview					
1	0.63	0.64	0.65	0.69	0.65
2	0.18	0.17	0.06	0.06	0.08
3	0.05	0.05	0.02	0.02	0.02
4	0.03	0.03	0.03	0.03	0.03
5	0.03	0.03	0.02	0.02	0.02
6	0.04	0.03	0.03	0.04	0.03
7	0.02	0.02	0.16	0.12	0.16
8	0.01	0.01	0.01	0.01	0.01
9	0.00	0.01	0.01	0.00	0.00
10	0.00	0.01	0.00	0.00	0.00
Individuals	21558	19020	2647	998	1199
Person-years	164068	145543	16470	6201	7684

Table A2 Random-effects panel regression of mental health (SF-12 MCS) on immigrant's time since arrival (ref. natives), controlling for age, age squared, gender, birth cohort, educational level and first job. Weights applied. Understanding society waves 1-11.

SF-12 Mental Component Summary (MCS)	Coef.	S.e.
Years since arrival (ref. Native)		
0 to 4 years	2.90***	(0.33)
5 to 9 years	2.23***	(0.23)
10 to 14 years	1.95***	(0.22)
15 to 20 years	1.76***	(0.25)
More than 20 years	0.81**	(0.30)
Age	-0.77***	(0.03)
Age sq.	0.01***	(0.00)
Woman	-2.09***	(0.10)
Birth cohort	-0.37***	(0.01)
Educational level (ref. Tertiary)		
L/t tertiary	-0.41*	(0.17)
Secondary	-0.47**	(0.15)
Lower	-0.65***	(0.13)
First job (ref. NA)		
Managers	0.89**	(0.31)
Professionals	0.55***	(0.15)
Technicians	0.52**	(0.18)
Administrative	0.19	(0.14)
Skilled trades	0.47**	(0.17)
Service	0.30	(0.20)
Sales	-0.32+	(0.18)
Operatives	-0.49+	(0.26)
Elementary	-0.16	(0.15)
Constant	67.64***	(0.68)
Individuals	24205	
Person-years	180538	

Standard errors in parentheses

* p<0.05 ** p<0.01 ***p<0.001

Table A3 Random- and Fixed- effects regressions of mental health (SF-12 MCS) on the interaction between immigrant status, age and age squared, for set A (immigrants arrived between 18 and 24 years of age, natives aged 18-60), and for set B (immigrants arrived between 25 and 34 years of age, natives aged 25-60). Random-effects models control for gender, birth cohort, educational level and first job, and have random slopes for age. Weights applied. Understanding Society waves 1-11. The age measures are coded so that 18(set A) and 25(set B) years old correspond to zero.

	Set A				Set B			
	Random effects		Fixed effects		Random effects		Fixed effects	
	Coef.	S.e.	Coef.	S.e.	Coef.	S.e.	Coef.	S.e.
Age	-0.55***	(0.02)	-0.63***	(0.02)	-0.46***	(0.02)	-0.54***	(0.03)
Age sq.	0.01***	(0.00)	0.01***	(0.00)	0.01***	(0.00)	0.01***	(0.00)
Immigrant	1.21	(0.87)			3.01***	(0.75)		
Immigrant x Age	0.09	(0.09)	0.22+	(0.14)	-0.04	(0.09)	-0.06	(0.12)
Immigrant x Age sq.	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)	0.00	(0.00)
Woman	-2.04***	(0.11)			-2.03***	(0.12)		
Birth cohort	-0.38***	(0.01)			-0.34***	(0.01)		
Educational level (ref. Tertiary)								
L/t tertiary	-0.38*	(0.18)			-0.43*	(0.18)		
Secondary	-0.44**	(0.16)			-0.76***	(0.18)		
Lower	-0.64***	(0.14)			-0.84***	(0.14)		
First job (ref. NA)								
Managers	0.98**	(0.34)			0.82*	(0.32)		
Professionals	0.50**	(0.16)			0.34*	(0.16)		
Technicians	0.49**	(0.18)			0.48**	(0.18)		
Administrative	0.14	(0.14)			0.13	(0.14)		
Skilled trades	0.54**	(0.17)			0.50**	(0.17)		
Service	0.35+	(0.20)			0.25	(0.20)		
Sales	-0.25	(0.18)			-0.38*	(0.18)		
Operatives	-0.41	(0.25)			-0.69**	(0.26)		
Elementary	-0.11	(0.15)			-0.07	(0.16)		
Constant	54.73***	(0.22)	56.58***	(0.28)	52.38***	(0.19)	54.78***	(0.26)
Individuals	22556				20219			
Person-years	170269				153227			

Standard errors in parentheses

+ p<0.1 * p<0.05 ** p<0.01 ***p<0.001

Table A4 Random- and Fixed- effect regressions of mental health (SF-12 MCS) on the interaction between immigrant status, age and birth cohort for set A (immigrants arrived aged 18-24, natives aged 18-60) and for set B (immigrants arrived aged 25-34, natives aged 25-60). Random effects models control for gender, educational level and first job, and have random slopes for age. Weights applied. Understanding Society waves 1-11. The variables are coded so that the starting age for each cohort corresponds to zero.

	Set A				Set B			
	Random effects		Fixed effects		Random effects		Fixed effects	
	Coef.	S.e.	Coef.	S.e.	Coef.	S.e.	Coef.	S.e.
Age	-0.34***	(0.02)	-0.40***	(0.02)	-0.33***	(0.02)	-0.40***	(0.02)
Immigrant	0.20	(0.81)			2.23**	(0.70)		
Immigrant x Age	0.10	(0.07)	0.08	(0.09)	0.09	(0.06)	0.04	(0.07)
Birth cohort (ref. 1975-84)								
1985-02	-1.67***	(0.25)			-0.47	(0.49)		
1965-74	-0.60*	(0.27)			-0.58*	(0.27)		
1948-64	-1.07***	(0.26)			-1.03***	(0.26)		
1985-02 x Age	-0.13***	(0.03)	-0.16***	(0.03)	-0.12*	(0.05)	-0.08	(0.06)
1965-74 x Age	0.14***	(0.02)	0.18***	(0.03)	0.14***	(0.02)	0.18***	(0.03)
1948-64 x Age	0.31***	(0.02)	0.31***	(0.03)	0.31***	(0.02)	0.31***	(0.03)
Immigrant x 1985-02	1.78	(1.44)			-2.47	(4.40)		
Immigrant x 1965-74	-0.50	(1.20)			-2.01*	(0.92)		
Immigrant x 1948-64	-1.63	(1.57)			-3.94**	(1.28)		
Immigrant x 1985-02 x Age	0.20	(0.14)	0.35*	(0.17)	0.36	(0.37)	0.22	(0.47)
Immigrant x 1965-74 x Age	-0.02	(0.10)	0.04	(0.13)	-0.00	(0.08)	0.02	(0.10)
Immigrant x 1948-64 x Age	-0.06	(0.12)	-0.07	(0.15)	-0.04	(0.11)	-0.03	(0.12)
Woman	-2.08***	(0.11)			-2.05***	(0.11)		
Educational level (ref. Tertiary)								
L/t tertiary	-0.38*	(0.17)			-0.47**	(0.17)		
Secondary	-0.53***	(0.15)			-0.94***	(0.17)		
Lower	-0.57***	(0.13)			-0.84***	(0.13)		
First job (ref. NA)								
Managers	0.84**	(0.32)			0.70*	(0.31)		
Professionals	0.32*	(0.16)			0.19	(0.15)		
Technicians	0.21	(0.18)			0.16	(0.18)		
Administrative	-0.11	(0.14)			-0.11	(0.14)		
Skilled trades	0.36*	(0.16)			0.35*	(0.17)		
Service	0.11	(0.19)			-0.03	(0.19)		
Sales	-0.47**	(0.17)			-0.65***	(0.18)		
Operatives	-0.69**	(0.24)			-0.92***	(0.25)		
Elementary	-0.29*	(0.15)			-0.28+	(0.15)		
Constant	52.34***	(0.22)	50.49***	(0.09)	52.52***	(0.22)	50.69***	(0.11)
Individuals	22556				20219			
Person-years	170269				153227			

Standard errors in parentheses

+ p<0.1 * p<0.05 ** p<0.01 ***p<0.001

8. Appendix B – Heterogeneities by race/ancestry and gender

In this section, I replicate the fixed-effect panel regressions for sets A and B reported in Figures 2 and 3 (Table A3) in the main text, stratifying the analyses by the largest groups in race/ancestry and by gender.

Table B1. Fixed-effects regressions of mental health (SF-12 MCS) on age (squared), stratified by immigrants' age at arrival and race/ancestry groups. Weights applied. Understanding society waves 1-11. The age measures are coded so that 18(set A) and 25(set B) years old correspond to zero.

	Set A					Set B				
	White	Indian	Pakistani	Other Asian	Black	White	Indian	Pakistani	Other Asian	Black
Age	-0.63*** (0.02)	-0.63*** (0.02)	-0.63*** (0.02)	-0.63*** (0.02)	-0.63*** (0.02)	-0.54*** (0.03)	-0.54*** (0.03)	-0.54*** (0.03)	-0.54*** (0.03)	-0.54*** (0.03)
Age x Age	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)
Immigrants x Age	0.19 (0.20)	0.28 (0.39)	0.07 (0.29)	0.59+ (0.33)	0.01 (0.35)	-0.23 (0.18)	0.05 (0.33)	-0.19 (0.35)	-0.07 (0.20)	0.56+ (0.31)
Immigrants x Age x Age	-0.00 (0.00)	0.00 (0.01)	-0.00 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.01 (0.00)	0.00 (0.01)	0.02 (0.01)	0.01 (0.01)	-0.01 (0.01)
Constant	56.62*** (0.28)	56.64*** (0.28)	56.65*** (0.28)	56.64*** (0.28)	56.65*** (0.28)	54.78*** (0.26)	54.74*** (0.26)	54.72*** (0.27)	54.74*** (0.26)	54.71*** (0.26)
Observations	166178	164961	164904	164998	164935	147991	146939	146282	146764	146772
Individuals	21872	21705	21719	21703	21702	19822	19665	19589	19634	19669
Imm-years	2110	893	836	930	867	2448	1396	739	1221	1229
Immigrants	314	147	161	145	144	364	207	131	176	211

Standard errors in parentheses

+ p<0.1 * p<0.05 **p<0.01 *** p<0.001

I report in Table B1 the results stratified by largest race/ancestry groups. The category “other Asian” includes immigrants with Bangladeshi, Chinese or other Asian descent, whereas the category “Black” includes Black Caribbean and Black African immigrants. The results are in line with those reported in the main text (ref. Table A3). Each group of immigrants experiences on average less steep mental health deterioration over time compared to UK natives, although the difference in slope is never statistically significant at the 95% threshold (it is statistically significant at the 90% threshold for “other Asian” immigrants in set A and for Black immigrants in set B). The only exceptions are white and Pakistani-ancestry immigrants who arrived aged 25 to 35, whose mental health deteriorates more steeply (although still not statistically significantly) than natives’.

The results of the analyses stratified by gender are reported in Table B2. In this case too, the conclusions are mostly in line with those from the unstratified analyses: immigrants are found to have either less steep mental health deterioration compared to natives, or to not differ statistically significantly from them in terms of mental health trajectories. Women who migrated when they were between 18 and 24 years old are the only group who has significantly (although only at the 90% threshold) less steep mental health deterioration over time compared to UK natives.

Table B2. Fixed-effects regressions of mental health (SF-12 MCS) on age (squared), stratified by immigrants' age at arrival and gender. Weights applied. Understanding society waves 1-11. The age measures are coded so that 18(set A) and 25(set B) years old correspond to zero.

	Set A		Set B	
	Men	Women	Men	Women
Age	-0.68*** (0.04)	-0.63*** (0.02)	-0.53*** (0.04)	-0.54*** (0.03)
Age x Age	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)
Immigrants x Age	0.04 (0.24)	0.22+ (0.14)	-0.11 (0.20)	-0.02 (0.15)
Immigrants x Age x Age	0.00 (0.01)	-0.00 (0.00)	0.00 (0.01)	0.00 (0.00)
Constant	58.09*** (0.42)	56.58*** (0.28)	55.75*** (0.41)	53.93*** (0.33)
Observations	72025	170269	65222	88005
Individuals	10446	13108	8966	11691
Immigrant x years	1937	4264	3236	4449
Immigrants	316	682	510	689

Standard errors in parentheses

+ p<0.1 * p<0.05 ** p<0.01 *** p<0.001

9. Appendix C – Missingness, attrition and mental health

9.1. Missingness

In Table C1, I report the number of individuals and observations (person-years) dropped at each stage of the selection of the analytical samples (full sample, set A and set B).

Table C1. Individuals and observations dropped and kept at each step of sample selection.

		Tot. Individuals	Tot. observations	Dropped ind.	Dropped obs.
0	UKHLS adult sample	82773	447220		
1	Target population	59205	289287	23568	157933
2	Without inconsistencies	58988	288169	217	1118
3	Valid information on control variables	58069	284461	919	3708
4	Valid information on mental health	55976	262995	2093	21466
5	Present in wave 6	25680	182013	30296	80982
6	2+ completed observations	24205	180538	1475	1475
7	Set A arrival age 18-24	22556	170269	1649	10269
8	Set B arrival age 25-35	20129	153227	2427	17042

As shown in Table C1, more than 20000 observations (person-years) are dropped due to missingness in the SF-12 MCS, including the observations for 2093 individuals who did not complete the SF-12 MCS in any survey wave. In Table C2, the observations dropped because of missing information on mental health are broken down by wave of data collection and immigrant status. Missingness is particularly low in wave 1 (107 natives and 50 immigrants), and particularly high in waves 2 (4892 natives and 1521 immigrants) and 6 (1730 natives and 2101). The high missingness in wave 6, especially among immigrants, is due to the fact that the SF-12 questionnaire was not administered in this wave to the newly added respondents of the IEMB sample.

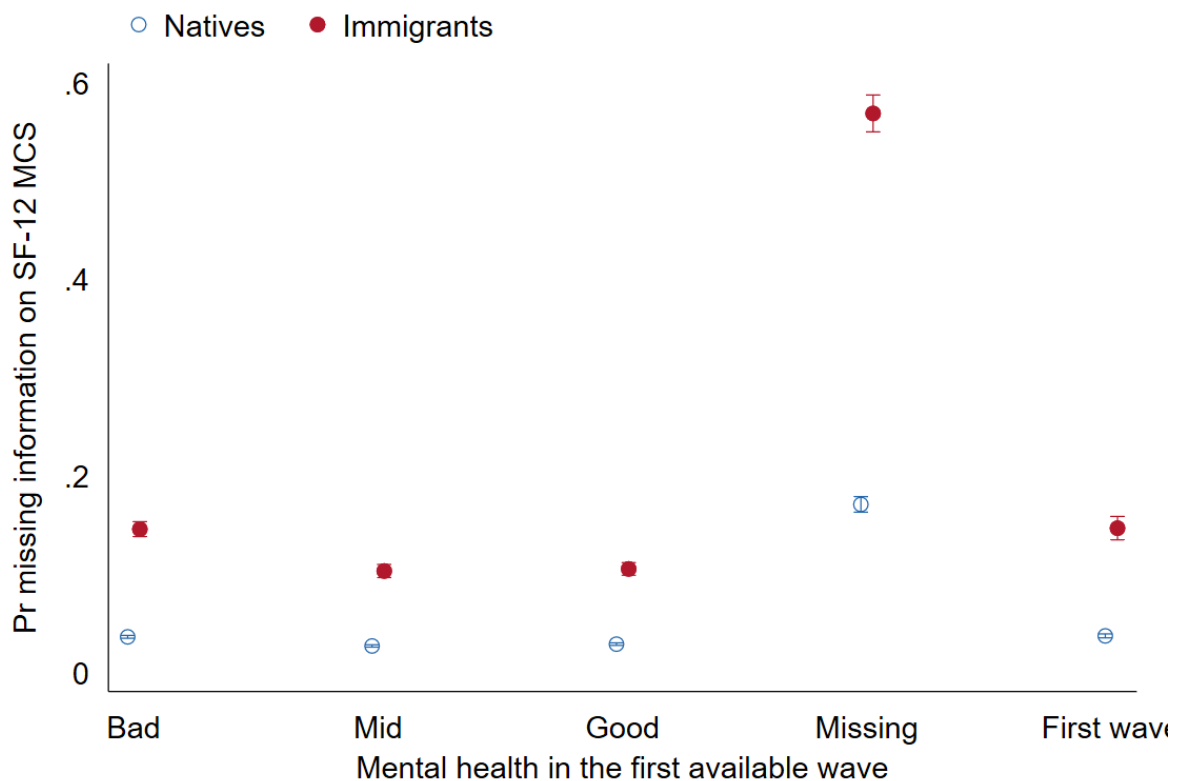
Table C1. Missing information on SF-12 MCS by immigrant status and wave.

Wave	Missing information on SF-12 MCS					
	Frequencies			Prop. missing within group		
	Natives	Immigrant	Total	Natives	Immigrant	Total
1	107	50	157	0.01	0.03	0.01
2	4892	1521	6413	0.25	0.58	0.29
3	1996	660	2656	0.11	0.34	0.13
4	1440	540	1980	0.08	0.29	0.10
5	1349	497	1846	0.08	0.27	0.09
6	1730	2101	3831	0.08	0.54	0.16
7	596	408	1004	0.03	0.15	0.05
8	561	366	927	0.04	0.16	0.05
9	591	370	961	0.04	0.19	0.06
10	643	291	934	0.05	0.17	0.06
11	590	167	757	0.05	0.12	0.06
Total	14495	6971	21466	0.08	0.29	0.11

The low missingness in wave 1 and the high one in wave 2 are due to a change in the mode of administration of the SF-12 questionnaire from CAPI interview in wave 1 to paper-and-pencil self-completion in wave 2. The self-completion questionnaire in wave 2 got a particularly low response rate, which affected the decision to move the self-completion questionnaire to CASI mode from wave 3 (ref. Boreham, 2012), hence in the lower missingness in the remaining waves. In all waves, immigrants are substantially more likely to have missing information on mental health compared to natives.

Next, I ran a logistic regression to assess whether immigrants and natives differ in the extent to which the first recorded level of mental health (or the missingness in the measure in the first relevant data collection) is associated with missingness in the SF-12 MCS variable in the following waves. The model controls for age (squared), gender, education, first job, and wave of data collection. The predicted probabilities of missingness in the SF-12 MCS by mental health in the first available wave and immigrant status are reported in Figure C1.

Figure C1. Predicted probabilities with 95% CIs of missingness in the SF-12 MCS variable by immigrant status and mental health in the first available wave of data collection. The model controls for age(squared), gender, educational level, first job, and wave of data collection. Predicted probabilities are computed at the mean level of the control variables. UKHLS waves 1-11.



Immigrants have significantly higher levels of non- or incomplete response to the SF-12 questionnaire compared to natives. This is particularly pronounced among respondent who had

poor mental health (SF-12 MCS below 48) at the first relevant wave of data collection, and among those who did not complete the SF-12 questionnaire in their first wave of data collection.

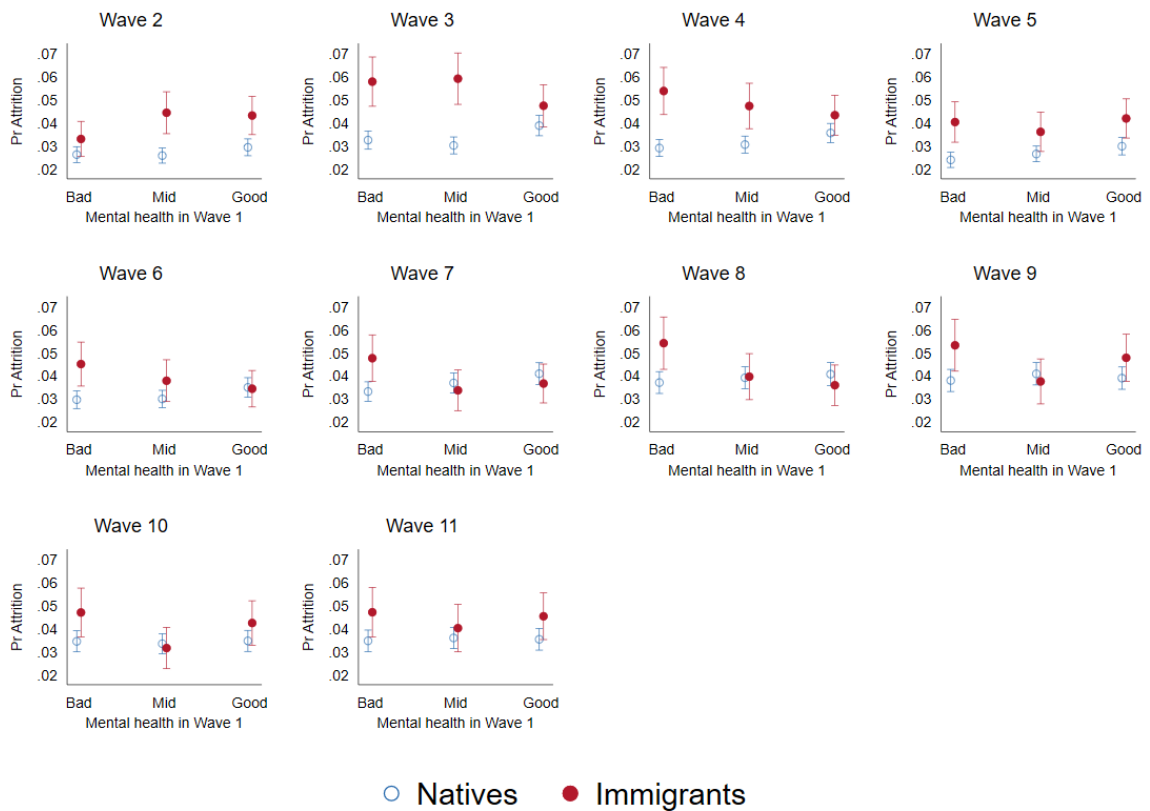
9.2. Attrition

In this section, I report the analyses investigating the determinants of attrition based on information collected at wave 1, which is the first wave for 63% of natives and 65% of immigrants in the analytical sample, and in which missingness in the mental health variable is very low.

In Figure C2 I report the predicted probability of attrition in waves 2 to 11 by immigrant status and mental health in wave 1, derived from logistic regressions controlling for age(squared), gender, education and first job. The analytical sample includes individuals who participated in wave 1 when they were between 18 and 60 years old, who migrated at age 18 or older or who were born in the UK, with no missing information on control variables in wave 1. Attrition is defined as not having provided a full interview for the relevant wave of data collection. This might happen, for example, in case of refusal, if the respondent was away, ill or infirm during the survey period, if they had language difficulties, if their eligibility was unknown, or if they moved and could not be reached.

In general, immigrants have a higher risk of attrition compared to natives. This is especially pronounced, in most waves, among individuals with bad (below 48) or average (49-55) levels of mental health in wave 1. The higher discrepancy in risk of attrition among individuals with poor and average levels of mental health is due to the different shape of the association of mental health and attrition between immigrants and natives. Among immigrants, the association between mental health and attrition is generally negative (the better the mental health, the lower the chance of attrition in following waves) or slightly U-shaped (individuals with average levels of mental health in wave 1 have the lowest attrition rates in following waves). Wave 2 is the only case in which better levels of mental health in wave 1 predict higher attrition among immigrants. To the contrary, among natives, better levels of mental health in wave 1 are associated with higher chances of attrition in the following waves.

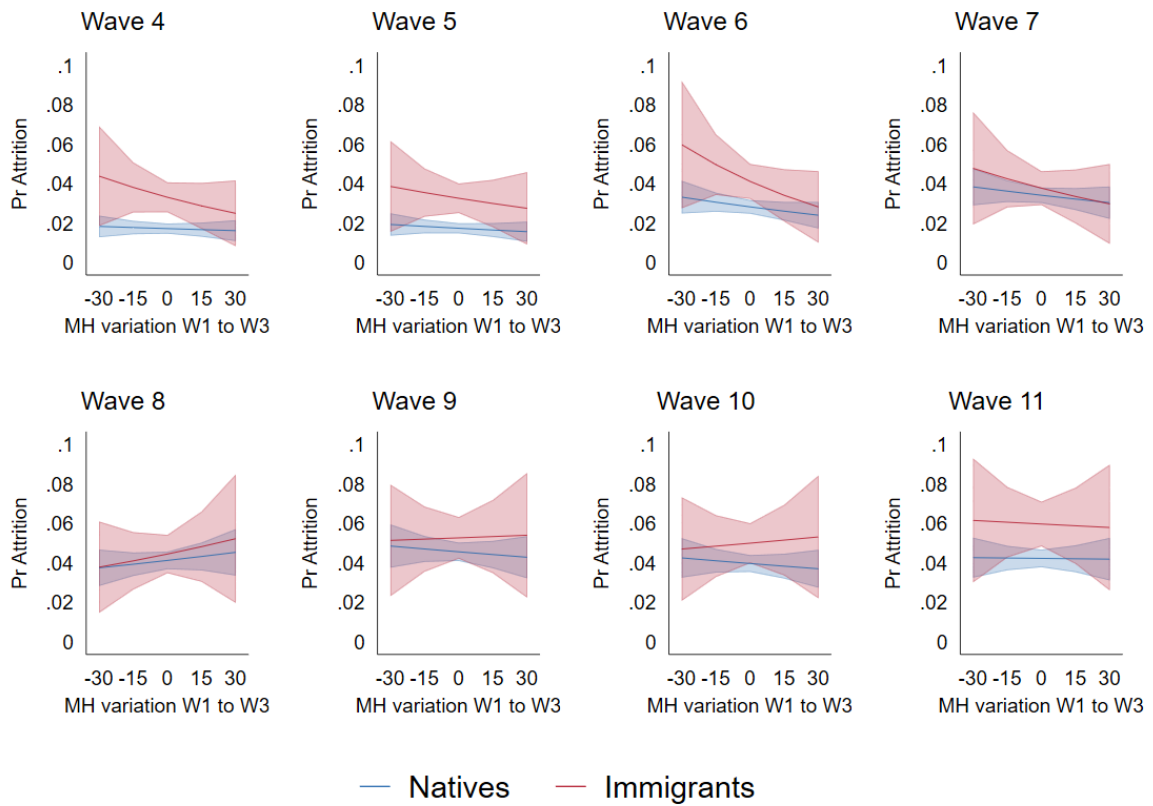
Figure C2. Predicted probabilities of attrition at waves 2-11 by mental health in wave 1 and immigrant status. The predicted probabilities are computed at mean levels of the control variables: age(squared), gender, education, first job.



Finally, I ran logistic regressions to assess whether the risk of attrition in waves 4-11 is associated with the within individual variation in mental health from wave 1 to wave 3, and whether this association is moderated by immigrant status. I use variation from wave 1 to wave 3 rather than to wave 2 due to the high level of non-response to the self-completion questionnaire in wave 2. The sample includes individuals, aged 18-60 in wave 1, who migrated age 18 or older or who were born in the UK, who participated and had non-missing information on mental health in both wave 1 and wave 3 (N=15766 natives, 2092 immigrants).

The predicted probabilities of attrition at waves 4 to 11 by variation in mental health from wave 1 to wave 3 and immigrant status, at average levels of the control variables (same as before) are plotted in Figure C3. Individuals who reported a stronger deterioration in mental health from wave 1 to wave 3 were less likely to participate in all of the following waves. This association was slightly stronger among immigrants than among natives concerning waves 4-7, whereas the opposite is true for waves 8-11. None of these associations is statistically significant.

Figure C3. Predicted probabilities with 95% CIs of attrition at waves 4 to 11 by variation in mental health from wave 1 to wave 3 and immigrant status, at average levels of the control variables (age(squared), gender, education, first job).



9.3. Conclusions

In this Appendix, I analysed the differences between immigrants and natives in the association between mental health in the first (relevant) wave and the risks of attrition and of missingness in the SF-12 questionnaire in the following waves. Analyses show that immigrants are more prone to non-response at all waves of data collection and, once they are interviewed, they are more likely to have missing information on the mental health variables. Both the immigrant-native difference in attrition and that in missingness in the mental health variable are more pronounced among individuals who had poor mental health in the first (available) wave of data collection. In addition, I found different patterns between immigrants and natives in the association between mental health in the first wave and attrition in the following waves: natives who had better mental health in wave 1 are more prone to non-response in the following waves, whereas the same is true, in most waves, for immigrants who had poor mental health in wave 1. I did not find a statistically significant difference between immigrants and natives in the association between *variation* in mental health from wave 1 to wave 3 and the probability of attrition in the following waves.

The association between immigrant status, mental health and missingness/attrition might be a source of bias in the results reported in the main text of the analyses, depending on the association between levels of mental health with their variation. If mental health tended to diverge over time, then immigrants experiencing the stronger mental health deterioration over time might be underrepresented in the data and natives with weaker mental health deterioration might be overrepresented. This could drive the finding that immigrants' mental health deterioration over time is similar or less steep than natives'. However, the correlation between mental health at wave 1 and mental health variation from wave 1 to 3 is negative (-.51) and statistically significant, meaning that individuals with better initial levels of mental health tend to have *stronger* mental health deterioration over time (probably due to ceiling and floor effects). In addition, I found no evidence that mental health variation over time predicts attrition, nor that this association differs between immigrants and natives.

10. Appendix D – Controlling for mediating factors

In this Appendix, I replicate the second part of the analyses in the main text (random- and fixed- effects regressions of mental health on age 18(25) to 60 stratified by immigrants’ age at arrival), with the addition of control for factors mediating the “effect” of time in the destination country and of age on mental health: employment status, marital status, number of children younger than 16 in the household and, in random effects models, race/ancestry.

The results for the random- and fixed- effects models for set A and for set B are reported in Table D1. Adding mediating variables (overcontrolling) does not affect the conclusions regarding the differences in mental health trajectories between immigrants and natives: all the coefficients for the interactions between immigrant status and age (and age square) are of similar size and statistical significance as in the models without controls for mediating factors, reported in Table A3.

Table D1 Random- and Fixed- effects regressions of mental health (SF-12 MCS) on the interaction between immigrant status, age and age squared, for set A (immigrants arrived between 18 and 24 years of age, natives aged 18-60), and for set B (immigrants arrived between 25 and 34 years of age, natives aged 25-60). Random-effects models control for gender, birth cohort, educational level, first job and race/ancestry, and have random slopes for age. Both fixed and random effects models control for employment status, marital status, and number of children younger than 16 in the household. Weights applied. Understanding Society waves 1-11. The age measures are coded so that 18(set A) and 25(set B) years old correspond to zero.

	Set A		Fixed		Set B		Fixed	
	Random		Coef.	S.e.	Random	S.e.	Coef.	S.e.
Age	-0.61***	(0.02)	-0.66***	(0.03)	-0.49***	(0.02)	-0.53***	(0.03)
Age x Age	0.01***	(0.00)	0.01***	(0.00)	0.01***	(0.00)	0.01***	(0.00)
Immigrants	1.32	(0.86)			3.33***	(0.75)		
Immigrants x Age	0.07	(0.09)	0.22+	(0.13)	-0.06	(0.09)	-0.07	(0.12)
Immigrants x Age x Age	-0.00	(0.00)	-0.00	(0.00)	0.00	(0.00)	0.00	(0.00)
Woman	-1.83***	(0.10)			-1.77***	(0.11)		
Birth Cohort	-0.38***	(0.01)			-0.35***	(0.01)		
Education <i>ref. Tertiary</i>								
L/t tertiary	-0.22	(0.17)			-0.19	(0.17)		
Secondary	-0.10	(0.16)			-0.22	(0.17)		
Lower	-0.22+	(0.13)			-0.32*	(0.13)		
First job <i>ref. NA</i>								
Managers	0.95**	(0.32)			0.78*	(0.31)		
Professionals	0.27+	(0.16)			0.16	(0.16)		
Technicians	0.32+	(0.18)			0.31+	(0.18)		
Administrative	0.03	(0.14)			0.02	(0.14)		
Skilled trades	0.49**	(0.16)			0.47**	(0.16)		
Service	0.26	(0.20)			0.19	(0.19)		
Sales	-0.25	(0.17)			-0.37*	(0.18)		
Operatives	-0.33	(0.24)			-0.58*	(0.24)		
Elementary	-0.12	(0.15)			-0.06	(0.15)		
Race/ancestry <i>ref. White</i>								
Mixed	-1.74***	(0.43)			-1.88***	(0.47)		

Indian	-0.39	(0.34)			-0.20	(0.35)		
Pakistani	-0.66+	(0.36)			-1.40***	(0.40)		
Bangladeshi	-1.00+	(0.59)			-1.80*	(0.78)		
Chinese	-0.50	(0.85)			-1.40+	(0.78)		
Other Asian	-0.35	(0.81)			0.09	(0.62)		
Black Caribbean	0.16	(0.43)			0.31	(0.47)		
Black African	1.35*	(0.56)			0.32	(0.53)		
Arab	0.12	(1.03)			-1.95+	(1.15)		
Other	-0.52	(0.76)			-0.69	(0.78)		
<i>Employment status ref. Self-employed</i>								
Paid employment	-0.36**	(0.11)	-0.33*	(0.14)	-0.34**	(0.12)	-0.34*	(0.14)
Unemployed	-3.43***	(0.18)	-2.64***	(0.20)	-3.64***	(0.19)	-2.80***	(0.22)
Retired	0.23	(0.23)	0.63*	(0.25)	0.22	(0.23)	0.67**	(0.25)
On maternity leave	0.50+	(0.26)	0.63*	(0.28)	0.63*	(0.27)	0.74**	(0.28)
Family care or home	-2.05***	(0.18)	-1.45***	(0.21)	-2.04***	(0.18)	-1.39***	(0.21)
Full-time student	-1.05***	(0.21)	-0.84***	(0.23)	-1.43***	(0.40)	-1.03*	(0.43)
LT sick or disabled	-8.07***	(0.28)	-5.81***	(0.34)	-7.96***	(0.27)	-5.70***	(0.34)
Other	-1.98***	(0.31)	-1.49***	(0.32)	-1.88***	(0.34)	-1.37***	(0.35)
<i>Marital status ref. single</i>								
Married	1.09***	(0.11)	0.42**	(0.15)	0.97***	(0.12)	0.20	(0.16)
In a registered same-sex civil partnership	0.83*	(0.38)	0.90*	(0.43)	0.85*	(0.38)	0.86*	(0.43)
Separated but legally married	-1.48***	(0.24)	-1.50***	(0.28)	-1.67***	(0.24)	-1.76***	(0.28)
Divorced	-0.24	(0.17)	0.02	(0.23)	-0.32+	(0.17)	-0.13	(0.23)
Widowed	-1.67***	(0.50)	-2.01**	(0.67)	-1.66***	(0.49)	-2.00**	(0.65)
NA	-0.83+	(0.46)	-0.88+	(0.46)	-0.84+	(0.50)	-0.97+	(0.51)
<i>Children <16 in HH ref. 0</i>								
1	0.17+	(0.09)	0.07	(0.11)	0.02	(0.09)	-0.07	(0.11)
2	0.13	(0.11)	-0.18	(0.14)	-0.02	(0.11)	-0.31*	(0.14)
3+	-0.02	(0.17)	-0.38+	(0.22)	-0.19	(0.18)	-0.57*	(0.22)
Constant	55.34***	(0.24)	57.52***	(0.31)	52.64***	(0.22)	55.59***	(0.29)
Observations	170269		170269		153227		153227	

Standard errors in parentheses

+ p<0.1 * p<0.05 **p<0.01 *** p<0.001

CHAPTER TWO

A scarring effect of having stayed behind? Experience of transnational family separation and mental health of immigrant adults.

Abstract

Transnational separation is a reality for many families in and from high-emigration countries, and has been consistently found to be an emotionally straining experience for both migrant and staying-behind family members. Studies on the association between transnational family separation and children's mental health have focused on staying-behind children during separation or shortly after reunification, showing that both processes are associated with worse mental health outcomes. In this study, I advance this literature by investigating long-term effects of experiences of transnational family separation in childhood on the mental health of adult immigrants living in the UK, using data from Understanding Society. I find that most adult immigrants whose parents also migrated to the UK were at some point transnationally separated from a parent during childhood. Experience of transnational family separation during childhood is only associated with worse mental health among women who were separated from both parents in the migration process. Differences by age at separation and length of separation are explored. These findings highlight the importance of considering family migration trajectories in the study of immigrant's wellbeing, and of reducing direct and indirect costs of family migration and reunification in immigration policymaking.

Keywords

Transnational families; mental health; children left behind; family separation

1. Introduction

The association between transnational separation (TFS) from a parent and mental health among children has become an established topic in social research in the past decades. However, most studies have compared children transnationally separated from one or both parents due to the latter's migration to children of non-migrant parents, focusing on non-migrant children living in high emigration countries (e.g. Cebotari et al., 2017; Graham & Jordan, 2011; Mazzucato, Cebotari, et al., 2015; Wen & Lin, 2012). These studies (implicitly) ask whether children experiencing TFS would be better off had their parent(s) never migrated. In this article, I ask a different question, that is whether, *given* parental migration, children who experience(d) TFS would be better off had they migrated at the same time as their parents. This question has gotten fewer attention in literature but has more direct policy implications from a destination country's standpoint, as the legal and financial barriers to family migration and reunification imposed by destination countries' immigration policies are an important determinant of TFS.

Given the dearth of comparable data across origin and destination countries, the main available way of investigating the association between TFS and mental health given parental migration is to compare, within destination countries, children who migrated with their parents to children who spent time transnationally separated from either or both of them before migrating themselves. Studies using this approach have found that individuals who were separated from a parent and then reunited in the destination country tend to have worse emotional wellbeing compared to those who migrated with their parents (Eremenko & González-Ferrer, 2018; Lu et al., 2020; Suárez-Orozco et al., 2011). However, this literature has so far only focused on children, teenagers or at most young adults with experience of TFS, and on individuals who reunited with their parents as minors. Therefore, we still know little on the long-term consequences of childhood experiences of TFS and of reunification, or on individuals who joined their parents in (young) adulthood.

In this article, I tackle these limitations by looking at the long-term association between experience of TFS during childhood and mental health among immigrant adults living in the UK, whose parents were also migrants, comparing them to individuals who migrated with both parents during childhood. I use data from waves 1-11 of Understanding Society, also known as the UK Household Longitudinal Study, using the first interview with complete information on mental health for each individual in the population of interest. All the analyses in this article are cross-sectional. I find that experience of TFS in childhood is extremely common in the group under study, with about one third of respondents having experienced TFS from their

fathers only, and almost another third from both parents. While I do not find significant differences in mental health between men who did or did not experience TFS as children, women who were transnationally separated from at least one of their parents during childhood report on average worse mental health compared to women who migrated with their parents as minors.

The structure of the article is as follows: first, in the “background” section, I review the literature on what leads to TFS and how the latter might cause long term psychological distress in individuals who experienced it at children or youth, focusing on the qualitative research on the topic. Then, I present the data, sample selection, variables and methods used in the analytical section of this article. In the third section I describe the sample composition, and in the fourth I present the results of the regression analyses of mental health on past experiences of TFS. In the last section, I discuss these results and present my conclusions.

2. Background

2.1. What leads to transnational family separation?

There are several reasons why parents migrate leaving their children behind. While in some cases one parent’s migration is meant to be the first step for the whole family’s migration (e.g. (Suárez-Orozco et al., 2011), often individuals migrate with the intention of saving enough to improve the family’s living conditions in the origin country, and to return after a few years working abroad (e.g. (Parreñas, 2005a; Zentgraf & Chinchilla, 2012). In both cases, there are several factors leading migrants to leave their children behind.

First, there are legal obstacles to family migration and reunification. Many immigrants are initially undocumented or have short term residence permits, which do not allow them to bring dependent family members with them, at least in a first period (Kofman, 2004; Poeze, 2019; Sirriyeh, 2015). Even once the first mover’s residence permit allows them to apply for family reunification, additional criteria can obstacle it. Such criteria include that of a minimum income level (see Sirriyeh, 2015), or the requirement that the family members are under a certain age and unmarried (children), or not working (partners) (e.g. Parreñas, 2005). Finally, the process of securing a visa for family reunification can be lengthy, due to administrative backlog, and uncertain, due to discrimination by street-level bureaucrats (Descamps & Beauchemin, 2022). These legal barriers often lead to the postponement of reunification until children can independently apply for a visa (e.g. as students, workers, or tourists), or migrate via unauthorised paths (Descamps & Beauchemin, 2022).

A second factor leading to TFS are migrants' working conditions in destination countries. Immigrants, especially in the few years after arrival in the destination country, often work in time intensive jobs with low pay (Clark & Drinkwater, 2008; Dustmann & Fabbri, 2005). Therefore, leaving children behind is more efficient both financially, as origin countries are generally characterised by lower living costs, and in terms of time, as migrant parents can rely on extended kin and neighbours in the origin country for childcare. A third set of reasons to leave children behind is cultural. Some migrant parents might want their children to grow up in their origin country to preserve their cultural belonging to the motherland, and to protect them from the perceived bad influences of the foreign cultures (e.g. González-Ferrer et al., 2012; Portes & Rumbaut, 2001). In addition, especially if migration is (initially) meant to be temporary, migrant parents might not want to interrupt their children's educational careers, or to expose them to discrimination or legal status uncertainty (Zentgraf & Chinchilla, 2012).

Overall, when deciding on TFS, parents try to weigh the benefits of separation – improving the material conditions of their children and extended family, including access to (better) education and healthcare, while not having to expose their children to a foreign and less desirable cultural environment – and its costs, primarily in terms of emotional wellbeing of everyone involved.

2.2. Family reconfigurations and care circulation during TFS

Transnational parents use a variety of tools and strategies to maintain a flow of care to and from their staying-behind children and kin (Baldassar & Merla, 2013). Tools that are available to migrant parents include calls, writing letters, sending remittances and gifts, and visits. Not all of these tools are (equally) accessible to all migrants: asylum seekers waiting for a decision are generally precluded from working, making it hard or impossible for them to send remittances or gifts to their family members staying behind (cf. Madziva & Zontini, 2012). Visits to the home country are risky or impossible for paperless immigrants, asylum seekers and immigrants waiting for their long-term residence permit. They are also hardly accessible for migrant parents who live in countries not connected through low-cost flights to their origin country, and/or who work jobs with long hours and few holidays. International calls and letters can also be expensive and time consuming (Parreñas, 2005; Poeze, 2019), especially before social media and online means of communication such, but it remains the case when at least a part of the transnational family does not have access to a stable internet connection.

Gender roles also affect the choice of tools to communicate with the family staying behind. In line with their gendered role as primary breadwinners, migrant fathers tend to rely on

remittances and gifts as their main form of parenting from abroad (Parreñas, 2005; Poeze, 2019), and rarely have calls with or write letters to their children in the origin country (Parreñas, 2005). Recent studies have however shown that fathers in transnational families increasingly try to engage in this type of communication, aiming at adopting a warmer model of fathering (e.g. Dávalos, 2020, Poeze, 2019). Migrant mothers, on the other hand, in addition to sending remittances and gifts, often put a considerable amount of effort into maintaining a warm, emotional connection with their children staying behind, through frequent calls and letters (Parreñas, 2005), to compensate for their deviance from their culturally mandated roles as carers/nurturers.

The caretakers of staying-behind children in the country of origin play a key role in their upbringing as well as in maintaining the relationship between them and their migrant parent(s) (Poeze & Mazzucato, 2013; Wall & Bolzman, 2013). These staying-behind carers are generally mothers in father-away families, and grandparents, extended kin, or neighbours in mother-away or both-parents-away ones. Staying-behind carers have the tasks of managing the migrant parents' remittances, providing emotional and material care for staying-behind children, and maintaining their memory of and contacts with their parents, especially for very young children.

2.3. Mental health of staying-behind children

As discussed in the previous section, migrant parents and staying-behind carers generally spend considerable efforts in maintaining a sense of familyhood and care circulation with their staying-behind children through the tools that they have available, and generally with the help of staying-behind kin. Nevertheless, quantitative and qualitative studies have consistently found TFS to be an emotionally straining experience for children in several high-emigration regions such as South-East Asia (Graham & Jordan, 2011), rural China (Zhao & Yu, 2016), Eastern Europe (Botezat & Pfeiffer, 2014), and Sub-Saharan Africa (Mazzucato, Cebotari, et al., 2015). Qualitative studies have often highlighted how different transnational family configurations lead to different types of emotional strain in children.

As previously discussed, migrant fathers tend to rely mostly on remittances and gifts as a form of transnational care. Thus, father-children relationships in *father-away families* are often characterised by a protracted lack of communication, and children commonly feel an “emotional gap” with their fathers (Parreñas, 2005, Poeze, 2019), and tend to feel neglected when remittances and gifts are fewer than expected (Poeze & Mazzucato, 2013). Migrant

mothers are not as strongly expected to be breadwinners, but they are expected to provide emotional support from a distance (Poeze & Mazzucato, 2013). Consequently, their relationship with their staying-behind children tends to be less impacted by variations in remittances (Poeze & Mazzucato, 2013), and children more rarely feel emotionally distant from them. Nevertheless, children in *mother-away families* often regret not having had sufficient emotional support growing up (Parreñas, 2005a), which can be partly due to children avoiding to communicate their distress to their migrant mothers to avoid burdening them (Wall & Bolzman, 2013). Finally, children in *two-parents-away families* often express regret for not having had someone to discipline them when growing up (Parreñas, 2005a). The latter are also the most likely to have siblings born to the parents in the destination country or who moved there with their parents, which can further increase feelings of abandonment, loss, and denied opportunities (e.g. Arnold, 2006).

The association between parental migration and children's mental health can be moderated by the staying behind carers, especially in societies where child fostering is more culturally accepted (Poeze & Mazzucato, 2013). When staying-behind carers satisfy staying-behind children's financial and emotional needs, including maintaining the contacts with their migrant parent(s), the association between TFS and mental health can be minimal (Poeze & Mazzucato, 2013). To the contrary, staying-behind children tend to develop feelings of anger and abandonment towards their parents if they feel mistreated or neglected by their surrogate carers (Poeze & Mazzucato, 2013).

The association between parental migration and staying-behind children's mental health is likely to vary by gender, although this dimension is often neglected in studies on staying-behind children. Some studies have found girls' mental health to be more negatively affected by TFS than boys' (Botezat & Pfeiffer, 2014; Zhao & Yu, 2016). This might reflect gender differences in the manifestation of psychological distress, with girls being more likely to present internalising symptoms – which are generally the target of mental health measures – whereas boys are more likely to develop externalising symptoms and deviant behaviours (Angold & Costello, 1995). In addition, (eldest) daughters often have to take care of younger siblings and of reproductive work after their parents' (mothers') migration (Parreñas, 2005b), which can be detrimental to their educational attainment and overall wellbeing.

2.3.1. Reunification: happy ending or further strain?

Many transnational families never reunite or do so in the origin country (Zentgraf & Chinchilla, 2012). Those who reunite in the destination country, which are likely to be a large part of those

who experienced TFS in the population of this article, often have conflicting feelings: on one hand, they are generally happy to reunite with their parents, while on the other, they often have to deal with a specific set of stressors (cf. Lu et al., 2020; Schapiro et al., 2013). These add up to the general difficulties associated with migration, such as adapting to a new language and environment, while often facing ethnic and racial discrimination.

First, for children who were fostered by extended kin or neighbours during TFS, reunification with their biological parents implies separation from their surrogate ones (e.g. (Arnold, 2006; Suárez-Orozco et al., 2011). This separation might be harder for children who experienced parental migration at a younger age, and for a longer time (Suárez-Orozco et al., 2011), as they generally have developed a stronger attachment to their surrogate parents and a weaker attachment to their biological ones. While for most children the grief for the separation from the surrogate parents can be compensated by the joy of reuniting with their parents, some children might develop feelings of anger towards their biological parents for separating them from their surrogate ones (Suárez-Orozco et al., 2011).

Second, the feelings of abandonment, resentment, and “emotional gap” towards their parents, often developed during TFS, are likely to protract after reunification and affect the parent-child relationship quality. Again, this might affect in particular children who were separated from their parents at a very young age, and thus never developed a strong attachment to them (Suárez-Orozco et al., 2011), and/or for a very long time (Lu et al., 2020). The emotional gap between children and parents can also affect parents’ ability to discipline children (Suárez-Orozco et al., 2011). This can increase behavioural problems and poor school performance, especially in boys (Lu et al., 2020). The parent-child relationship quality post reunification can be further challenged by changes in the family configuration during TFS, such as the birth of new (step-)siblings or parental separation and re-marriage (Arnold, 2006; Lu et al., 2020; Suárez-Orozco et al., 2011).

Third, reunification in the destination country increases the financial and time pressure on working parents, who have now to provide for their children living in the (generally more expensive) country of destination, while still often sending remittances to family members in the origin country. Consequently, children and teenagers in reunified families in destination countries are often left unsupervised, leading to feelings of loneliness (Arnold, 2006), as well as to worse scholastic performance (Dávalos, 2020).

Quantitative studies on the association between reunification and mental health have found that children who reunited with their parents tend to have worse mental health than children who migrated with their parents, in line with the expectations from qualitative literature. Only one study, relative to the US, looked into differences in the association by gender of the child, finding that the association between TFS/reunification and mental health is only statistically significant among boys (Lu et al., 2020) – although this might be partially due to the mental health indicator adopted tapping into externalising behaviours. Findings regarding the long-term association between reunification and children’s mental health are mixed. Findings by Suárez-Orozco and colleagues (2011), concerning Mexican children in the US, suggest that reunification is only associated with worse mental health outcomes in the first year after migration; after five years, children who had been transnationally separated from their parents during the migration process had similar mental health levels as children who migrated at the same time as their parents. However, Eremenko and Bennet (2018) found evidence that the association between TFS/reunification in childhood and mental health persisted throughout young adulthood (ages 16-25) in France and the UK. Similarly, and Lu et al. (2020) found that, in the US, children who had reunited with their parents two or more years prior to the survey had worse mental health than children who migrated with their parents, whereas children who had more recently reunited with their parents did not differ in mental health levels from children who never experienced TFS.

An important limitation of previous studies on formerly staying-behind children after reunification in the destination country is that they focused either on school children and teenagers (Cebolla Boado & González Ferrer, 2022; Lu et al., 2020; Suárez-Orozco et al., 2002, 2011), or on young adults up to the age of 25 (Eremenko & Bennett, 2018). As a result, it is not clear whether the psychological distress due to former TFS and reunification is only a short- or medium- term phenomenon, or whether it can have long-term consequences for individuals’ mental health. Another limit of previous literature is that it has so far excluded individuals who reunited with their parents as (young) adults. This is however a common occurrence (Descamps & Beauchemin, 2022), due to the legal, cultural and financial barriers to reunification discussed in sections 2.1 and 3.

3. Migration and family reunification in the UK

Requirements for family immigration and reunification varied greatly in the UK across time, countries of origin, and gender of the first mover (see Bhabha & Shutter, 1994 for a detailed review). Immigrants from non-Commonwealth countries have been since the early 1900s

subject to very restrictive family reunification laws. These immigrants do not have a right to be joined by their families, and family reunification is conditional on the sponsor's ability to provide for the dependent family members without recourse to public funds. With the UK access into the European Community (EC) in 1973, EC citizens have gained the right to move to the UK for work and to bring their families (defined in relatively generous terms, following EC law) with them. This was particularly relevant for migrants from post-Communist countries (especially Poland) who started migrating to the UK in the 1990s, and who later gained European citizenship with the 2004 enlargement⁶.

While European citizens gained increased rights to family reunification in the UK over time (until Brexit), Commonwealth citizens of non-British descent experienced the opposite trend. While they could move to and settle in the UK without restrictions until the 1960s, in 1962 they were for the first time subject to immigration control, limiting access to those who possessed an employment voucher, who came for study reasons, or who had independent means to sustain themselves and their dependents. Under this 1962 Commonwealth Immigrants Act, men from the Commonwealth had the right to be joined by their wives and children under the age of 16 – however, the lack of official registration of marriages and births in many former colonies was often used by immigration officials to delay or hinder reunifications (Bhabha & Shutter, 1994). Women from the Commonwealth – similarly to non-Commonwealth citizens – did not have a right to be joined by their partners and children, making their access to reunification dependent on more arbitrary decisions by immigration officers, or to independent migration by their partners and children. Finally, the 1988 Immigration Act repealed the right of Commonwealth men who had moved to the UK after 1973 to bring their wives and children to the UK (Baptiste, 1988), subjecting them to the same restrictions for family reunification as Commonwealth women and non-EC, non-Commonwealth citizens. Another group to which separate family reunification rules apply are refugees, who, however, are a relatively small group in the UK and impossible to identify in the data used in this article.

The changes in citizenship, immigration and family reunification law in the UK throughout the 20th century, as described in the paragraphs above, were at the same time reactions and determinants of migration trends in the same years. Until the 1980s, immigration came mostly from Commonwealth countries. Until the 1970s, this migration was incentivised by the UK government in order to fill the demand for, largely unskilled, workers in a context of expanding

⁶ Unfortunately, this group is underrepresented in the data used in this article.

economy. Migrants were largely men from the former colonies in the Caribbeans first, and in the Indian Sub-Continent then. The first economic migrations were followed by family reunification because, as described above, men from the Commonwealth had a right to be joined in the UK by their dependants. In the early 1970s, coinciding with the oil crisis and a general trend towards migration restrictions in Europe, the UK sharply increased the barriers to migration from non-white Commonwealth citizens, although family reunifications continued, especially for those who had migrated before 1973. As immigration from the colonies slowed down due to the increased restrictions, that from EC countries increased following the UK's entry into the EC. In addition, migration from former communist countries increased since the 1990s, and especially with the 2004 enlargement.

4. Data, variables and methods

4.1. Data

I use data from the first eleven waves of the UKHLS (University of Essex, 2021). Understanding Society is a panel survey conducted yearly in the UK since 2009. Each data collection round lasted around 2 years, and ethnic and minority boost (EMB) and immigrant and ethnic minority boost (IEMB) samples were introduced in waves 1 and 6, respectively, targeting individuals with Indian, Pakistani, Bangladeshi, Black Caribbean, or Black African origins (both EMB and IEMB) and immigrants (IEMB only). While the sample is not fully representative of the immigrant population in the UK, it does not deviate excessively from this population in the distribution of educational titles, gender, and reasons to migrate (Lynn et al., 2018).

The analytical sample includes individuals younger than 60, who responded to the adult questionnaire (ages 16+), who were born outside of the UK and migrated in a different year than their birthyear, with two foreign-born parents, with at least one parent who migrated to the UK, and whose parents were both still alive when they were 14. As the article's research question is cross-sectional, I select the first available observation with no missing information for each respondent. This corresponds to wave 1 for 82% of respondents, and to wave 7⁷ for 15%.

The analysis compares two groups: immigrants who migrated with their parents as children/youth and immigrants who experienced TFS as children/youth. The first group

⁷ This was the first wave in which IEMB respondents were administered the SF-12 questionnaire.

includes children of two immigrant parents who migrated in the same year as both of their parents and who arrived in the UK as minors (younger than 18). TFS is difficult to measure as it requires detailed information on migration histories of children and parents alike. Because such detailed information is not available in UKHLS, the second group is defined in three, increasingly restrictive, ways.

The first definition (“All”) includes individuals who migrated to the UK in a different year than at least one of their parents and for whom this separation started when they were younger than 18. In several cases, one or both parents migrated to the UK before the respondent’s birth. This is not unrealistic, as this group might include ‘satellite children’ – children born to migrant parents who are brought back to (or given birth to in) the origin country to be reared by extended family – as well as children of a transnational couple, with one of the parents living abroad but visiting the home country regularly. However, the formulation of the question on parents’ year of migration to the UK does not clarify if they lived in the UK uninterrupted since then, and therefore this group is likely to include some individuals who did not experience TFS as children/youth. To minimise the risk of including the latter, I drop the cases in which one of the parents migrated to the UK more than 10 years before the birth of the respondent, and those in which both parents migrated before the birth of the respondent. An additional issue is that the year of parental death is not recorded in the survey. This could lead to wrongly identifying respondents as having experienced TFS if, for example, they migrated in the same year as one of the parents while the other parent never migrated to the UK. Therefore, I exclude cases where one of the parents of the respondent was dead by the time the respondent was 14, never migrated to the UK, and the respondent migrated before age 15.

In the second definition (“restricted age at separation”), all individuals who have at least one parent who migrated prior to their birth are excluded. Finally, in the third definition (“restricted age at and length of separation”), also individuals who experienced more than 20 years of separation from one of their parents, as measured through the difference between the years at first migration, are excluded. The process of sample selection and group assignment is presented graphically in Figure A1 in Appendix A.

4.2. Variables

The dependent variable, mental health, is measured through the mental health section of the Short Form 12 (SF-12) questionnaire. This includes six items, measuring how much of the time in the past four weeks the respondent has: accomplished less than they would like as a result

of any emotional problems; done their work or other regular daily activities less carefully than usual as a result of any emotional problems; felt calm and peaceful; had a lot of energy; felt downhearted and depressed; had their physical health or emotional problems interfere with their social activities. The answers to each item range from 1, corresponding to “all of the time”, to 5, corresponding to “none of the time”, meaning that lower scores represent worse mental health in all items but two: “felt calm and peaceful” and “had a lot of energy”. I use the derived composite index (SF-12 Mental Component Summary, henceforth SF-12 MCS), a continuous variable ranging from 0 (worst mental health) to 100 (best mental health) as the dependent variable.

The main explanatory variables measure whether the respondents experienced TFS from their fathers, mothers, or both; the age at which each of these separations happened; and the difference in years between each parent’s and respondents’ (first) migration to the UK. These variables are computed based on information on the respondent’s and their parents’ year of migration to the UK, as reported by respondents in waves 1 (general and EMB samples) or 6 (IEMB sample). Information on parents’ years of migration is collected in two steps: first, respondents whose parents are born abroad were asked “Has your mother[father] ever lived in the UK?”, and those who answer yes were then asked “In which year did she[he] first move to the UK?”. Consequently, the experienced/not experienced TFS categories are likely to be subject to considerable measurement error, as some individuals in the “no TFS” category might have in fact experienced it if (one of) their parents migrated to a third country. In addition, it is not possible to reliably measure the length of TFS, as parents who at some point migrated to the UK might have returned to the origin country before the respondents’ migration to the UK. In some cases, the information on parental migration to the UK (yes/no and year of first migration) was missing in the respondents’ report but available due to the parent(s) being also part of the sample. In these cases (N=353 for mothers, 253 for fathers), the parental report was used, whereas the respondent’s report was used in cases where the reports on year of parental migration differed (N=82 for mothers, 73 for fathers), or when the respondent claimed that the parent never migrated but an interview was available for the parent (N=12 for mothers, N=8 for fathers).

TFS is a categorical variable identifying whether the respondent experienced TFS as a minor from none of the parents, from the father only, from the mother only, or from both parents. *Age at TFS from the father* identifies if the separation from the father started when the respondent was not born yet, was a pre-schooler (0-5 years old), a pre-teen (6-12 years old), or a teenager

(13-17 years old). The reference category for this variable is having migrated at the same time as one's father; individuals who only experienced TFS from their mothers are also included in this category, as they are too small of a group to be included in a separate category. *Age at TFS from the mother* identifies the same categories of age at separation as the "age at TFS from the father" variable, with the difference that the reference category identifies individuals who did not experience TFS from any of their parents, with a separate category for those who only experienced TFS from their fathers.

Years of TFS from the father (mother) measures whether the respondent migrated up to 1 year, between 2 and 5 years, between 6 and 10, or more than 11 apart from their father (mother). If the father(mother) never migrated, the variable measures the time since respondents' migration. This is an upper limit for the length of TFS, as parents might have returned to their origin country after their first migration, and children might have independently migrated to the UK later in life. Again, while the reference category for the variables relative to length of TFS from fathers is having migrated with the father (incl. individuals who did experience TFS from their mothers), the reference category in the variable relative to the separation length from the mother only includes individuals who did not experience TFS from any of their parents, and a separate category is identified for individuals who only experienced TFS from their fathers.

Control variables include *age group*, with the categories 16-19, 20-24, 25-34, 35-44, 45-60; *parental education* indicating the highest level of education between the parents, with the categories "did not go to school at all", "left school without qualifications or certificates", "gained post school qualifications or certificates", "gained a university or higher degree", with an extra category for missing information; *race/ethnicity*, a categorical variables indicating whether individuals are, based on their ancestry, White, mixed, Indian, Pakistani, Bangladeshi, Chinese, Other Asian, Black Caribbean, Black African, Arab, or other; *parental separation*, a dummy variable indicating if the respondent declared that their parents were never married or never lived together, or that they were separated or divorced when the respondent was 14. This question was only asked to respondents who did not live with both their parents at age 14; *parental death by age 14*, a dummy variable indicating if one of the respondent's parents was dead when the respondent was aged 14; *country of residence*, indicating whether the respondents live in England, Scotland, Wales or Northern Ireland; *recent immigrant*, a dummy variable indicating if the respondent arrived to the UK in the six years prior to the interview (calculated from the information on the year of first arrival and the year of the interview); and *wave*, indicating the wave of data collection when the time varying variables (mental health

indicators, age, length of stay, country of residence) are recorded. Summary statistics for all the variables employed in the analyses are reported in Table A1.

4.3. Methods

I use linear regression models stratified by gender to investigate differences in mental health between individuals who experienced TFS from their father (mother) and those who did not. I run three sets of analyses: first, I analyse the difference in mental health between individuals who did not experience TFS, those who were only separated from their fathers, those who were only separated from their mothers, and those who were separated from both parents. Second, I analyse differences in mental health between individuals who did not experience TFS and those who separated from their fathers (mothers) at different ages. Finally, I analyse differences in mental health between individuals who did not experience TFS and those who experienced different lengths of separation from their fathers (mothers).

All models control for age group, age at arrival, parental education, recent immigration, parental separation, country of residence in the UK, and wave of data collection. Models measuring the difference in mental health between individuals who did not experience TFS and those who were separated from their fathers (at different ages, or for different number of years) also control for whether individuals experienced separation from their mothers.

As previously discussed, the lack of information on potential return and circular migration of parents might lead to substantially overestimate the amount of people who experienced TFS in childhood, and the length of this separation. Therefore, all analyses are repeated not only on the full analytical sample as described in the Data section, but also on two increasingly restrictive alternative ones. In the first restricted sample (labelled as “Restricted age at TFS”), I exclude individuals who have at least one parent whose first migration to the UK occurred before the respondent’s birth. While this is not an unrealistic occurrence⁸, individuals in this group are more likely than the others to be incorrectly classified as having experienced TFS. This restriction leads to dropping 111 men and 132 women from the full sample. In the second restricted sample (labelled as “Restricted age at and length of TFS”), I additionally drop individuals for whom the estimated length of separation is longer than 20 years. The rationale behind this exclusion is that the length of separation is particularly likely to be overestimated for this group. This sample restriction leads to dropping an additional 108 men and 129 women.

⁸ As mentioned in section 4.1, it is not uncommon for migrant women to return to the home country to give birth and leave the babies to be reared by the grandparents or other extended family members.

5. Sample description

The first important observation is that, among adult immigrants who experienced the migration to the UK of at least one parent during childhood, TFS is extremely common. In all sample definitions, individuals who did *not* experience TFS represent less than one third of the sample (from 23% in the full sample to 30% in the most restrictive sample). Among those who experienced TFS, about half experienced it only from the father, whereas experience of TFS from the mother only is very rare (4.7% in the full sample and around 2.3% in the restricted samples). These figures exclude individuals who experienced TFS from one parent but have incomplete information on the other parents' migration, and those who experienced TFS in childhood because they migrated as minors without their parents. A report on experiences of TFS in the full adult immigrant sample in the UKHLS – including cases with incomplete information as well as individuals whose parents never migrated or only migrated when respondents were adults – is provided in Appendix B.

I present the share of individuals who did not experience TFS by each parent's year of first immigration to the UK (full sample) in Figure 1. Non-migrant parents are assigned value 1939 to be included in the graph. In line with the patterns of international migration to the UK, most individuals in the sample come from families in which the father migrated first (dots below the diagonal), although mother-first migration seems to be more common since the 1990s. Many of these families – especially those in which fathers migrated in the period of high migration from former colonies in South Asia, 1960s-1980s – were transnationally separated for very long periods of time. Even among individuals whose parents migrated in the same year (markers on the diagonal), experience of TFS seems to be the norm. It should be noted that the apparent lower incidence of TFS among individuals whose parents migrated in the 2010s-2020s does not necessarily reflect a real decrease in the phenomenon, but simply the fact that many children separated from their parents in these years were still – at the time of data collection – abroad.

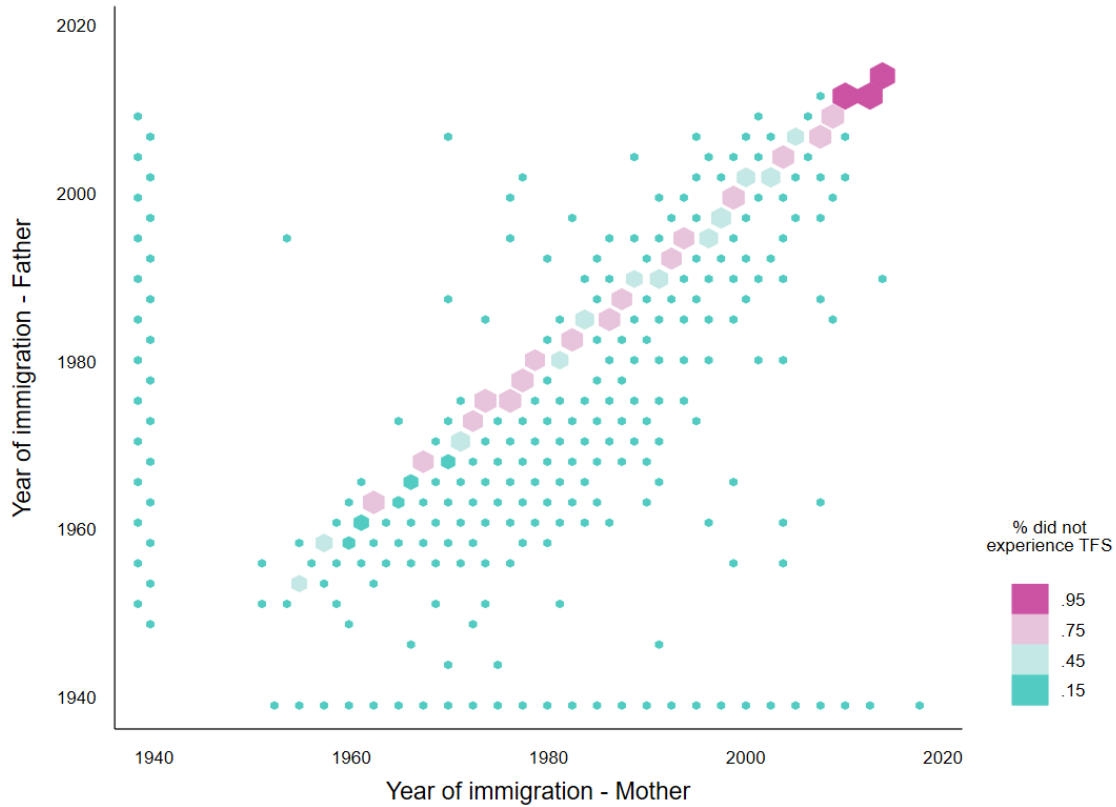


Figure 1. Heatmap of experience of TFS by each parent's year of first migration to the UK. Marker size is proportional to the N and marker colour represents the share of respondents who did not experience TFS.

Figure 2 presents the distribution of years of TFS by age at TFS for each parent. Individuals who experienced TFS at younger age also tend to have had longer periods of separation: 75% of individuals whose mothers migrated when they were in preschool age (0-5) experienced TFS for longer than 3 years, versus 33% among those who were teenagers when they were separated from their mothers. This might be partially due to the higher costs (in terms of money and time) of raising small children, which makes it preferable for migrant parents to leave their children in the countries of origin, and partially to the fact that it is much harder for children of immigrants to obtain entry to the UK after turning 18, meaning that teenagers staying behind will either join their parents as soon as possible or stay in the country of origin.

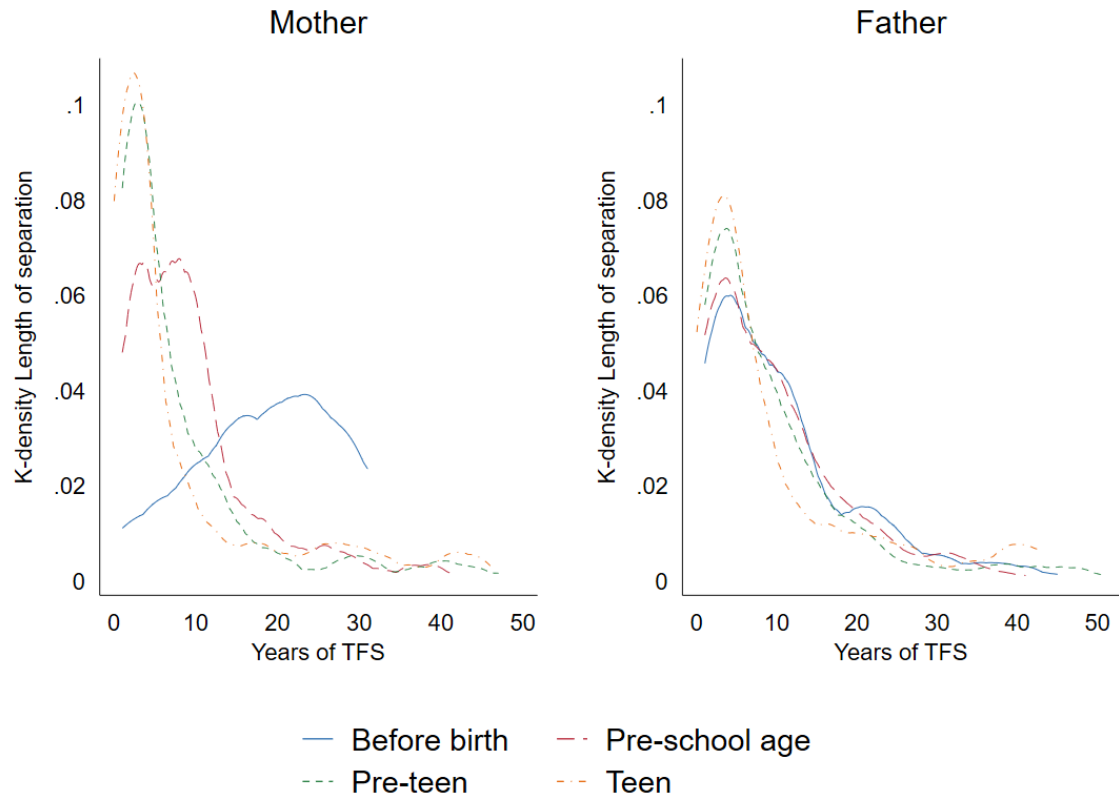


Figure 2. Distribution of years of separation by age at separation, for each parent

Finally, Figure 3 presents the percentage of individuals who did not experience TFS, by year of first arrival to the UK of their father (y axis) and of their mother (x axis), and by ancestry. As shown in the graph, the patterns of parental arrival to the UK by ancestry are in line with the migration waves to the UK: individuals of Afro-Caribbean descent are mostly children of immigrants arrived in the UK around the 1960s, and almost all experienced TFS. Many of the individuals from the former British colonies in South Asia (Pakistan, India, Bangladesh) are children of migrant workers who arrived between the 1960s and the 1980s and who were joined by their wives (and children) several years later. Within this group, migrants with Indian ancestry seem to be more likely to have migrated as a couple, leaving their children behind, whereas migration from Bangladesh and Pakistan – at least until the 1990s – seem to have been mostly man-led, with long periods of transnational marital separation. After the 1980s (a little later for Bangladeshis), immigrants from these countries seem to have experienced shorter marital separation, and to have been more likely to migrate at a nuclear family. While only a handful (6 out of 96) Black African individuals in the sample whose parents migrated before 1990 migrated as a family unit, this is an increasingly common experience for those in this group whose parents migrated since the 1990s – although still 80% of the individuals in this

group experienced TFS because of parental migration. The parents of the Arab individuals in the sample mostly migrated between the 1990s and the 2010s: while early immigrants in this group are more likely to have migrated as a family, children of later immigrants are more likely to have experienced periods of TFS. This might be due to compositional changes in terms of countries of origin within this group. Finally and unsurprisingly, white immigrants, a group largely composed of Irish and Polish immigrants, are the least likely to have experienced TFS⁹. More precise information on percentages of TFS by each parent and median length of separation by country of birth / ancestry are reported in Table A2.

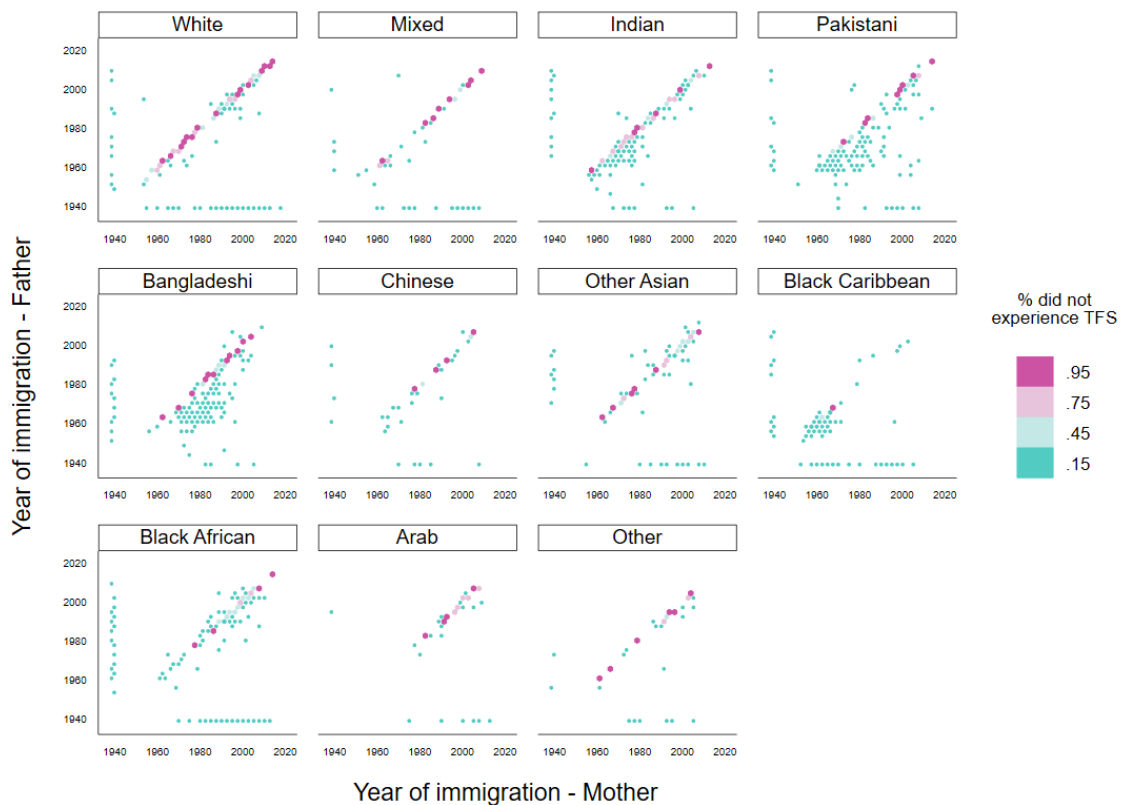


Figure 3. heatplot of share of individuals who did not experience TFS by father's and mother's year of first migration to the UK. Marker size is proportional to N.

6. Results

Results for the linear regression of mental health (SF-12 MCS) on TFS from parents (no TFS, mother only, father only, or both), stratified by gender and repeated for each analytical sample are reported in Figure 4. The models control for age group, age at arrival, parental education, recent immigration, parental separation, parental death at age 14, country of residence in the

⁹ It should be noted that this group is underrepresented in the data, as they were not specifically targeted in the EMB / IEMB samples.

UK, and wave of data collection and are reported in full in Table A4. A general observation is that while women who experienced TFS tend to have on average worse mental health than women who migrated with their parents (although this difference is often not statistically significant, as discussed in the next paragraph), among men the difference is both substantially null and statistically non-significant.

Among women, only those who experienced TFS from both parents have statistically significantly worse mental health than those who migrated with their parents, and only in the two restrictive samples (only at the 90% threshold for the “restricted age at TFS” sample). Importantly, the difference in mental health between women who experienced TFS from both parents and women who did not experience TFS is larger once respondents whose parents migrated before their birth (restr. Age at TFS sample) and even more once also those with extremely long TFS (restr. Age at and length of TFS sample) are excluded. This is in line with the idea that these groups are likely to include some individuals who never actually experienced TFS, or who did so for shorter than measured: if so, including these groups as having experienced TFS (for long periods of time) would lead to underestimation of the TFS-mental health association.

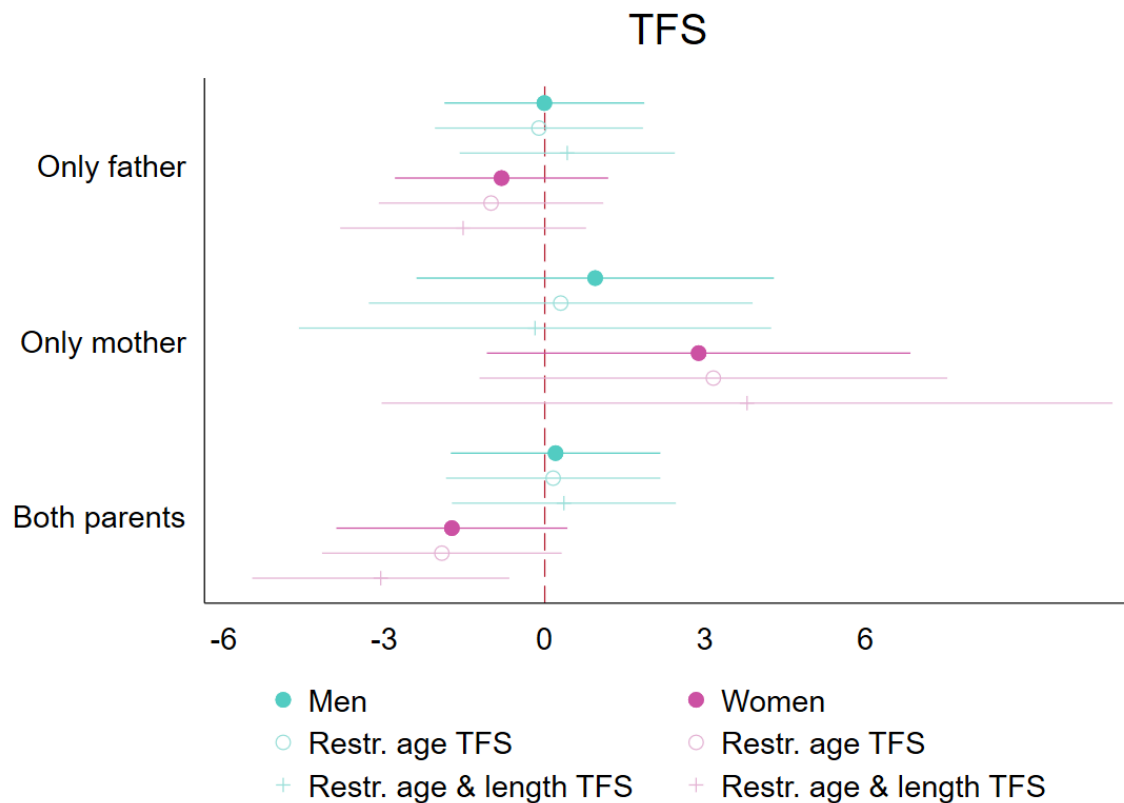


Figure 4. Coefficient plots from the regression of mental health on experience of TFS, for each gender and sample definition. Note: the "only mother" categories have a very small N. Full models in Table A4

Finally, results from the analyses by age and length at TFS from each parent are reported in Figure 5. Again, results for women point towards a negative association between mental health and experiences of TFS, although differences in mental health compared to women who did not experience TFS are only statistically significant for women who experienced TFS from either parent (although TFS from mother only statistically significant for the restricted samples) as pre-teens, or for 2-5 years or 6-10 years. There is no substantial support for the hypothesis that longer TFS is associated with stronger mental health deficit, although in the restricted samples, the coefficient for 6-10 years of TFS from mother is substantially larger than that for 2-5 years.

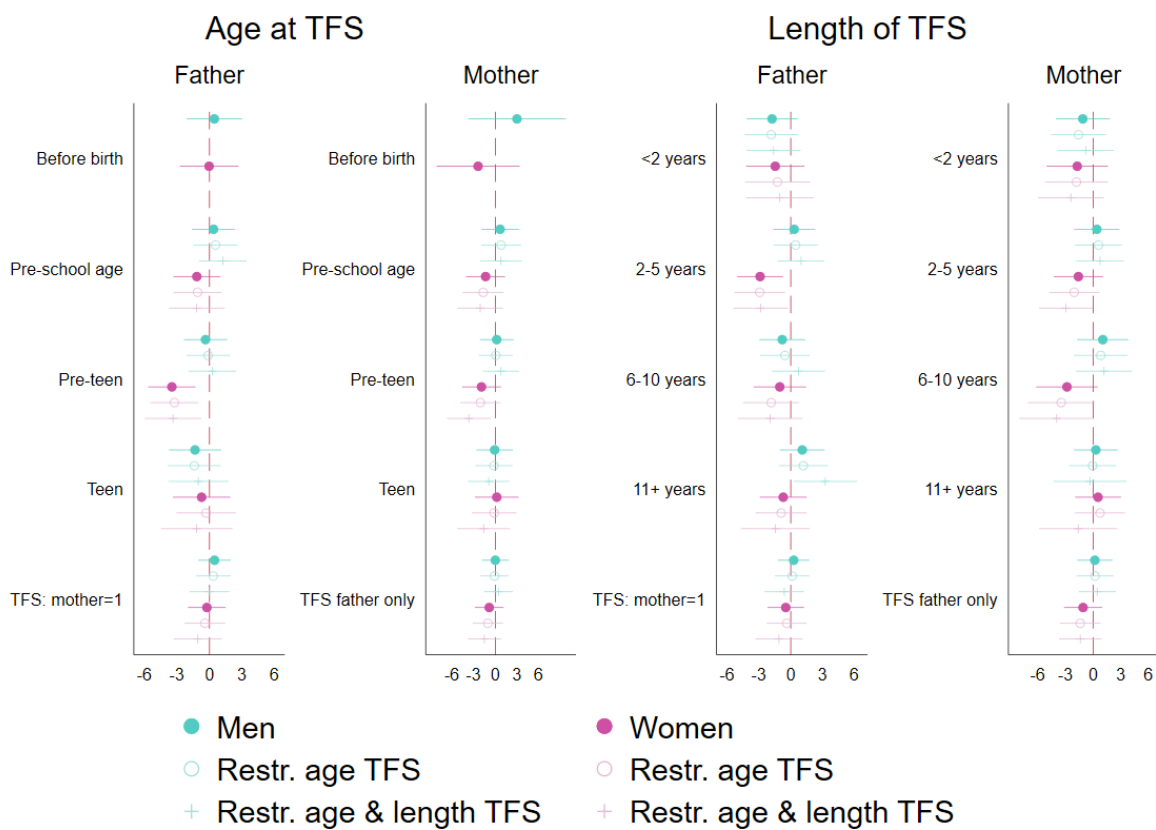


Figure 5. Coefficient plots from the regression of mental health on age at TFS (columns 1 and 2) and length of (columns 3 and 4) TFS from fathers (columns 1 and 3) and from mothers (columns 2 and 4), for each gender and sample definition. Full models in Table A5 (first and second figures) and in Table A6 (third and fourth).

A remarkable finding is that coefficients for men are never statistically significant and always very close to zero (even positive in some cases). Additional analyses (reported in Appendix C) using an alternative measure of mental health, which only taps into positive mental health and functioning, result instead in similar associations between early life experience of TFS and mental health between men and women. The possible explanations for this and the other findings are discussed in the next and concluding section.

7. Discussion and conclusions

In this article, I studied the long-term association between experience of TFS and mental health among individuals living in the UK who experienced parental migration in childhood – comparing those who migrated at the same time as their parents to those who experienced TFS in the family migration process. While several quantitative studies have studied the association between TFS and mental health among children, they have mostly done so comparing non-migrant children of migrant parents to non-migrant children of non-migrant parents in the origin country. In addition, the few studies comparing the mental health of formerly staying-behind children after reunification to that of children who migrated with their parents in the destination country have exclusively considered individuals who joined their parents as minors, and have not investigated potential long-term association between TFS, reunification and mental health. In line with expectations, I have found indication that, among immigrants in the UK, women who experienced TFS as children or youth tend to present worse mental health conditions in adulthood than women who migrated with their parents in their childhood or youth. No association between TFS and mental health is found among men. These results are discussed in the following paragraphs.

The main finding of this article is that there might be differences in how daughters and sons react to transnational separation from their parents, and specifically that daughters' mental health might be more vulnerable to such experience. An explanation for this is that TFS might be more stressful for daughters than for sons, as (eldest) daughters often take care of younger siblings and of reproductive work in the absence of their parents, especially in mother-away and in two-parents-away families (cf. Parreñas, 2005b). This finding is also in line with a broader pattern in quantitative literature, in which daughters' mental health and wellbeing are more vulnerable to family stressors, such as parental job loss (Bubonya et al., 2017) and poor parent-child relationship quality (Lewis et al., 2015), and to forms of interpersonal stress (Bakker et al., 2010; Rudolph, 2002). This finding contrasts those from a different study on family separation and reunification, based on a sample of school-aged children in the U.S. (Lu et al., 2020), which found that boys showed mental health symptoms after reunification, whereas girls were unaffected. This discrepancy can reflect a difference in mental health measurement: while I use a symptoms-based scale aimed mostly at measuring depression, Lu and colleagues construct a dummy variable measuring whether the child has seen a therapist for “behavioural, emotional, or mental problems”, or if the parents or someone else have thought that this could be a necessity – a condition that is likely more often met in case of

externalising symptoms, as these are more visible and disruptive to other people. As there are established gender differences in the expression of psychological distress, with girls and women being more prone to internalising symptoms and boys and men to externalising ones (Angold & Costello, 1995), my article is likely to underestimate psychological distress in men, whereas Lu and colleagues' measure may underestimate it in girls. The additional analyses reported in Appendix D support the existence of a long-term association between experience of TFS in childhood/teenagerhood and (reduced) positive mental health among men as well as women. This suggests that the gender differences reported in the results section of this article are due to women being more likely than men to manifest their mental distress in the form of depressive symptoms.

While the results from this article partially support the hypothesis of a long-term association between TFS and mental health for women, they are based on cross-sectional data and analyses, on respondents' reports of their parents' year of migration and educational level, and on incomplete information on the migration trajectories of respondents and of their parents. Having considered these limitations, the evidence reported and discussed in this article does point towards a possible long term negative impact of TFS on mental health for women in the context of European migrations, which is supported by the relevant qualitative literature and should be further investigated. A central step to enable this is for surveys to record the necessary information to identify individuals who experienced TFS and for how long, possibly taking into account parental return migration and migration to countries other than the final destination one.

Further research should also investigate differences in the association between TFS and mental health between countries of origin: such differences are likely to arise from cultural differences in the salience of the nuclear family type and in gendered parenting roles (cf. Mazzucato, Schans, et al., 2015; Parreñas, 2005a), from differences in access to permits for work and family reunification (cf. Lu et al., 2020), and to tools for transnational parenting at the time of the separation (cf. Zentgraf & Chinchilla, 2012). The exploratory analyses by race/ancestry reported in Appendix C suggest that the association between experience of TFS in childhood and mental health in adulthood might differ between groups. However, these differences are not statistically significant, due to the small group sizes.

In a context of increasing requirements for family reunification (e.g. Sirriyeh, 2015) and in which the policymaking discourse about “desired” immigrants keeps focusing exclusively on their role as – ideally short-term – workers, this article and the broader research project that it

stems from aim to be a reminder that immigrants are also, among other things, partners, parents, and children of ageing parents, and that family separation due to short term and precarious permits, low pay and/or intense working conditions can be a strain on the lives of the people European countries depend on, and on their kin in their origin countries. As already discussed by other scholars (e.g. Zentgraf & Chinchilla, 2012), receiving countries should, first, remove legal obstacles for family migration, including minimum income requirements, and shorten the process of family reunification; second, when absent, they should impose minimum salaries and maximum working hours for the jobs typically occupied by immigrants and characterised by high levels of exploitation, such as domestic care jobs. Finally, they should aim at guaranteeing immigrants' access to services such as childcare and language acquisition and to welfare benefits, in order to reduce the costs of family reunification.

References

- Angold, A., & Costello, E. J. (1995). Developmental epidemiology. *Epidemiologic Reviews*, 17(1), 87–107. https://doi.org/10.1007/978-1-4614-9608-3_5
- Arnold, E. (2006). Separation and loss through immigration of African Caribbean women to the UK. *Attachment and Human Development*, 8(2), 159–174. <https://doi.org/10.1080/14616730600789472>
- Bakker, M. P., Ormel, J., Verhulst, F. C., & Oldehinkel, A. J. (2010). Peer Stressors and Gender Differences in Adolescents' Mental Health: The TRAILS Study. *Journal of Adolescent Health*, 46(5), 444–450. <https://doi.org/10.1016/j.jadohealth.2009.10.002>
- Baldassar, L., & Merla, L. (2013). Locating Transnational Care Circulation in Migration and Family Studies. In *Transnational Families, Migration and the Circulation of Care*. Routledge.
- Baptiste, M. J. (1988). The implications of the new Immigration Bill. *Critical Social Policy*, 8(23), 62–69. <https://doi.org/10.1177/026101838800802305>
- Bhabha, J., & Shutter, S. (1994). *Women's movement: Women under immigration, nationality and refugee law*. Trentham Books Limited.
- Botezat, A., & Pfeiffer, F. (2014). *The Impact of Parents Migration on the Well-Being of Children Left Behind – Initial Evidence from Romania* (SSRN Scholarly Paper 2432946). <https://doi.org/10.2139/ssrn.2432946>

- Bubonya, M., Cobb-Clark, D. A., & Wooden, M. (2017). Job loss and the mental health of spouses and adolescent children. *IZA Journal of Labor Economics*, 6(1), 1–27. <https://doi.org/10.1186/s40172-017-0056-1>
- Cebolla Boado, H., & González Ferrer, A. (2022). The impact of physical separation from parents on the mental wellbeing of the children of migrants. *Journal of Ethnic and Migration Studies*, 48(10), 2436–2454. <https://doi.org/10.1080/1369183X.2021.1935670>
- Cebotari, V., Mazzucato, V., & Siegel, M. (2017). Child Development and Migrant Transnationalism: The Health of Children Who Stay Behind in Ghana and Nigeria. *The Journal of Development Studies*, 53(3), 444–459. <https://doi.org/10.1080/00220388.2016.1187723>
- Clark, K., & Drinkwater, S. (2008). The labour-market performance of recent migrants. *Oxford Review of Economic Policy*, 24(3), 495–516. <https://doi.org/10.1093/oxrep/grn023>
- Descamps, J., & Beauchemin, C. (2022). Reunifying or leaving a child behind: How official and unofficial state selection shape family immigration in France. *Journal of Ethnic and Migration Studies*, 0(0), 1–26. <https://doi.org/10.1080/1369183X.2022.2114888>
- Dustmann, C., & Fabbri, F. (2005). Immigrants in the British Labour Market*. *Fiscal Studies*, 26(4), 423–470. <https://doi.org/10.1111/j.1475-5890.2005.00019.x>
- Eremenko, T., & Bennett, R. (2018). Linking the family context of migration during childhood to the well-being of young adults: Evidence from the UK and France. *Population, Space and Place*, 24(7), e2164. <https://doi.org/10.1002/psp.2164>
- Eremenko, T., & González-Ferrer, A. (2018). Transnational families and child migration to France and Spain. The role of family type and immigration policies. *Population, Space and Place*, 24(7), e2163. <https://doi.org/10.1002/psp.2163>
- González-Ferrer, A., Baizán, P., & Beauchemin, C. (2012). Child-Parent Separations among Senegalese Migrants to Europe: Migration Strategies or Cultural Arrangements? *Annals of the American Academy of Political and Social Science*, 643(1), 106–133. <https://doi.org/10.1177/0002716212444846>
- Graham, E., & Jordan, L. P. (2011). Migrant Parents and the Psychological Well-Being of Left-Behind Children in Southeast Asia. *Journal of Marriage and Family*, 73(4), 763–787. <https://doi.org/10.1111/J.1741-3737.2011.00844.X>
- Kofman, E. (2004). Family-related migration: A critical review of European studies. *Journal of Ethnic and Migration Studies*, 30(2), 243–262. <https://doi.org/10.1080/1369183042000200687>

- Lewis, A. J., Kremer, P., Douglas, K., Toumborou, J. W., Hameed, M. A., Patton, G. C., & Williams, J. (2015). Gender differences in adolescent depression: Differential female susceptibility to stressors affecting family functioning. *Australian Journal of Psychology*, *67*(3), 131–139. <https://doi.org/10.1111/ajpy.12086>
- Lu, Y., He, Q., & Brooks-Gunn, J. (2020). Diverse Experience of Immigrant Children: How Do Separation and Reunification Shape Their Development? *Child Development*, *91*(1), e146–e163. <https://doi.org/10.1111/cdev.13171>
- Lynn, P., Nandi, A., Parutis, V., & Platt, L. (2018). Design and implementation of a high-quality probability sample of immigrants and ethnic minorities: Lessons learnt. *Demographic Research*, *38*(1), 513–548. <https://doi.org/10.4054/DemRes.2018.38.21>
- Madziva, R., & Zontini, E. (2012). Transnational mothering and forced migration: Understanding the experiences of Zimbabwean mothers in the UK. *European Journal of Women's Studies*, *19*(4), 428–443. <https://doi.org/10.1177/1350506812466609>
- Mazzucato, V., Cebotari, V., Veale, A., White, A., Grassi, M., & Vivet, J. (2015). International parental migration and the psychological well-being of children in Ghana, Nigeria, and Angola. *Social Science & Medicine*, *132*, 215–224. <https://doi.org/10.1016/J.SOCSCIMED.2014.10.058>
- Mazzucato, V., Schans, D., Caarls, K., & Beauchemin, C. (2015). Transnational families between Africa and Europe. *International Migration Review*, *49*(1), 142–172. <https://doi.org/10.1111/imre.12153>
- Parreñas, R. S. (2005a). *Children of Global Migration: Transnational Families and Gendered Woes*. Stanford University Press.
- Parreñas, R. S. (2005b). The Gender Paradox in the Transnational Families of Filipino Migrant Women. *Asian and Pacific Migration Journal*, *14*(3), 243–268. <https://doi.org/10.1177/011719680501400301>
- Poeze, M. (2019). Beyond breadwinning: Ghanaian transnational fathering in the Netherlands. *Journal of Ethnic and Migration Studies*, *45*(16), 3065–3084. <https://doi.org/10.1080/1369183X.2018.1547019>
- Poeze, M., & Mazzucato, V. (2013). Ghanaian Children in Transnational Families: Understanding the Experiences of Left-Behind Children through Local Parenting Norms. In L.

- Baldassar & L. Merla (Eds.), *Transnational Families, Migration and the Circulation of Care* (p. 21). Routledge. <https://doi.org/10.4324/9780203077535>
- Portes, A., & Rumbaut, R. G. (2001). Acculturation and Role Reversal. In *Legacies: The story of the immigrant second generation*. University of California Press.
- Rudolph, K. D. (2002). Gender differences in emotional responses to interpersonal stress during adolescence. *Journal of Adolescent Health, 30*(4 SUPPL. 1), 3–13. [https://doi.org/10.1016/S1054-139X\(01\)00383-4](https://doi.org/10.1016/S1054-139X(01)00383-4)
- Schapiro, N. A., Kools, S. M., Weiss, S. J., & Brindis, C. D. (2013). Separation and reunification: The experiences of adolescents living in transnational families. *Current Problems in Pediatric and Adolescent Health Care, 43*(3), 48–68. <https://doi.org/10.1016/j.cppeds.2012.12.001>
- Sirriyeh, A. (2015). ‘All you need is love and £18,600’: Class and the new UK family migration rules. *Critical Social Policy, 35*(2), 228–247. <https://doi.org/10.1177/0261018314563039>
- Suárez-Orozco, C., Kim, H. Y., & Bang, H. J. (2011). I Felt Like My Heart Was Staying Behind: Psychological Implications of Family Separations & Reunifications for Immigrant Youth. *Journal of Adolescent Research, 26*(2), 222–257. <https://doi.org/10.1177/0743558410376830>
- Suárez-Orozco, C., Todorova, I. L. G., & Louie, J. (2002). Making up for lost time: The experience of separation and reunification among immigrant families. *Family Process, 41*(4), 625–643. <https://doi.org/10.1111/j.1545-5300.2002.00625.x>
- Wall, K., & Bolzman, C. (2013). Mapping the new plurality of transnational families: A life course perspective. In L. Baldassar & L. Merla (Eds.), *Transnational families, migration and the circulation of care* (pp. 77–93). Routledge.
- Wen, M., & Lin, D. (2012). Child Development in Rural China: Children Left Behind by Their Migrant Parents and Children of Nonmigrant Families. *Child Development, 83*(1), 120–136. <https://doi.org/10.1111/j.1467-8624.2011.01698.x>
- Zentgraf, K. M., & Chinchilla, N. S. (2012). Transnational Family Separation: A Framework for Analysis. *Journal of Ethnic and Migration Studies, 38*(2), 345–366. <https://doi.org/10.1080/1369183X.2011.646431>

Zhao, F., & Yu, G. (2016). Parental Migration and Rural Left-Behind Children's Mental Health in China: A Meta-Analysis Based on Mental Health Test. *Journal of Child and Family Studies*, 25(12), 3462–3472. <https://doi.org/10.1007/s10826-016-0517-3>

8. Appendix A – Complementary tables and figures

Table A1. Summary statistics, by sex and sample

Variable	Men Full sample N 796				Restr. Age TFS Mean S.d. Min Max 873				Restr. Age and Length TFS Mean S.d. Min Max 685				Women Full sample N 741				Restr. Age TFS Mean S.d. Min Max 577				Restr. Age and Length TFS Mean S.d. Min Max 612			
	Mean	S.d.	Min	Max	Mean	S.d.	Min	Max	Mean	S.d.	Min	Max	Mean	S.d.	Min	Max	Mean	S.d.	Min	Max	Mean	S.d.	Min	Max
SF-12 MCS	50.29	9.57	11.93	70.53	48.31	10.99	4.89	71.23	50.38	9.54	11.93	70.53	48.43	11.00	4.89	71.23	50.55	9.38	11.93	70.53	48.17	11.13	4.89	71.23
Experience of TFS																								
No TFS	0.22	0.42			0.24	0.43			0.26	0.44			0.28	0.45			0.31	0.46			0.34	0.47		
Only father	0.40	0.49			0.40	0.49			0.35	0.48			0.34	0.47			0.33	0.47			0.31	0.46		
Only mother	0.05	0.22			0.04	0.20			0.05	0.22			0.04	0.20			0.03	0.18			0.02	0.13		
parents	0.33	0.47			0.32	0.47			0.34	0.48			0.34	0.47			0.33	0.47			0.34	0.47		
Age at TFS Father																								
No TFS	0.27	0.44			0.28	0.45			0.31	0.46			0.32	0.47							0.36	0.48		
Before birth	0.13	0.34			0.13	0.34											0.34	0.47						
Preschool age	0.24	0.43			0.23	0.42			0.28	0.45			0.27	0.45			0.28	0.45			0.27	0.44		
Pre-teen	0.22	0.42			0.22	0.41			0.26	0.44			0.25	0.43			0.25	0.43			0.24	0.42		
Teen	0.13	0.34			0.14	0.34			0.15	0.36			0.15	0.36			0.14	0.34			0.14	0.35		
Age at TFS Mother																								
No TFS	0.22	0.42			0.24	0.43			0.26	0.44			0.28	0.45							0.34	0.47		
Before birth	0.01	0.10			0.02	0.13											0.31	0.46						
Preschool age	0.11	0.31			0.13	0.34			0.11	0.31			0.14	0.35			0.11	0.31			0.13	0.34		
Pre-teen	0.15	0.35			0.12	0.33			0.16	0.37			0.13	0.34			0.16	0.36			0.13	0.34		
Teen	0.11	0.31			0.09	0.29			0.12	0.33			0.11	0.31			0.10	0.30			0.09	0.28		
Only TFS father	0.40	0.49			0.40	0.49			0.35	0.48			0.34	0.47			0.33	0.47			0.31	0.46		
Length of TFS Father																								
No TFS	0.27	0.44			0.28	0.45			0.31	0.46			0.32	0.47			0.34	0.47			0.36	0.48		
<2 years	0.10	0.30			0.10	0.30			0.11	0.31			0.09	0.29			0.13	0.33			0.11	0.31		
2-5 years	0.22	0.41			0.21	0.41			0.21	0.41			0.20	0.40			0.24	0.43			0.23	0.42		
6-10 years	0.19	0.39			0.15	0.36			0.18	0.38			0.15	0.36			0.18	0.39			0.16	0.36		
11+ years	0.22	0.41			0.26	0.44			0.19	0.39			0.24	0.43			0.11	0.31			0.15	0.35		
Length of TFS Mother																								
No TFS	0.22	0.42			0.24	0.43			0.26	0.44			0.28	0.45			0.31	0.46			0.34	0.47		
<2 years	0.07	0.25			0.06	0.24			0.08	0.27			0.07	0.26			0.08	0.28			0.08	0.27		
2-5 years	0.13	0.33			0.13	0.33			0.14	0.34			0.15	0.35			0.15	0.35			0.16	0.36		
6-10 years	0.08	0.28			0.07	0.26			0.08	0.28			0.07	0.26			0.09	0.29			0.07	0.25		
11+ years	0.17	0.38			0.18	0.38			0.16	0.37			0.16	0.36			0.05	0.22			0.05	0.23		
Only TFS father	0.33	0.47			0.32	0.47			0.28	0.45			0.27	0.45			0.32	0.47			0.31	0.46		
Parental separation																								
No	0.91	0.29			0.85	0.36			0.90	0.30			0.84	0.37			0.90	0.30			0.86	0.35		
Yes	0.09	0.29			0.15	0.36			0.10	0.30			0.16	0.37			0.10	0.30			0.14	0.35		
Age group																								
16-19	0.17	0.38			0.18	0.39			0.19	0.39			0.20	0.40			0.23	0.42			0.24	0.43		
20-24	0.12	0.33			0.14	0.35			0.14	0.34			0.16	0.36			0.15	0.35			0.18	0.39		
25-29	0.07	0.26			0.11	0.31			0.07	0.26			0.11	0.32			0.07	0.26			0.11	0.31		
30-34	0.09	0.29			0.09	0.28			0.08	0.27			0.07	0.26			0.06	0.24			0.06	0.24		
35-44	0.16	0.37			0.17	0.37			0.12	0.32			0.13	0.33			0.11	0.31			0.09	0.29		
45-60	0.38	0.49			0.31	0.46			0.40	0.49			0.33	0.47			0.39	0.49			0.31	0.46		
Recent immigrant	0.13	0.33			0.11	0.31			0.14	0.35			0.12	0.32			0.13	0.33			0.12	0.32		
Country																								
England	0.98	0.14			0.97	0.18			0.98	0.15			0.97	0.17			0.97	0.16			0.97	0.18		
Wales	0.01	0.09			0.01	0.11			0.01	0.09			0.01	0.10			0.01	0.10			0.01	0.11		
Scotland	0.01	0.11			0.02	0.13			0.01	0.11			0.02	0.13			0.01	0.12			0.02	0.14		
Northern Ireland	0.00	0.04			0.00	0.07			0.00	0.04			0.00	0.05			0.00	0.04			0.00	0.06		
Ancestry																								
White	0.12	0.32			0.12	0.33			0.13	0.33			0.13	0.34			0.13	0.34			0.14	0.35		

<i>Mixed</i>	0.04	0.18	0.04	0.20	0.04	0.19	0.04	0.20	0.04	0.20	0.05	0.21
<i>Indian</i>	0.21	0.41	0.16	0.37	0.24	0.43	0.17	0.38	0.25	0.44	0.19	0.39
<i>Pakistani</i>	0.14	0.35	0.12	0.32	0.12	0.33	0.08	0.27	0.11	0.31	0.07	0.26
<i>Bangladeshi</i>	0.12	0.33	0.09	0.28	0.07	0.26	0.05	0.22	0.06	0.24	0.04	0.20
<i>Chinese</i>	0.03	0.17	0.02	0.13	0.02	0.18	0.02	0.13	0.03	0.18	0.02	0.13
<i>Other Asian</i>	0.07	0.26	0.06	0.23	0.08	0.27	0.07	0.25	0.08	0.27	0.07	0.26
<i>Black Caribbean</i>	0.08	0.27	0.14	0.35	0.08	0.28	0.15	0.35	0.08	0.27	0.13	0.33
<i>Black African</i>	0.15	0.35	0.18	0.39	0.16	0.37	0.21	0.40	0.17	0.37	0.20	0.40
<i>Arab</i>	0.03	0.16	0.04	0.19	0.03	0.17	0.04	0.21	0.03	0.18	0.05	0.23
<i>Other</i>	0.02	0.13	0.03	0.18	0.02	0.13	0.04	0.19	0.02	0.13	0.04	0.19
Parental Education												
<i>Did not go to school</i>	0.07	0.25	0.05	0.23	0.06	0.23	0.04	0.21	0.06	0.24	0.05	0.21
<i>Left school without cert</i>	0.17	0.37	0.18	0.38	0.16	0.37	0.17	0.38	0.16	0.37	0.17	0.38
<i>Left school with some cert</i>	0.17	0.38	0.16	0.36	0.16	0.37	0.14	0.35	0.16	0.37	0.14	0.35
<i>Post-school cert</i>	0.09	0.29	0.10	0.29	0.10	0.30	0.10	0.30	0.11	0.31	0.10	0.30
<i>University/higher degree</i>	0.15	0.36	0.17	0.38	0.16	0.36	0.18	0.39	0.15	0.36	0.18	0.39
<i>NA</i>	0.35	0.48	0.34	0.47	0.36	0.48	0.36	0.48	0.36	0.48	0.36	0.48
Wave												
<i>1</i>	0.80	0.40	0.78	0.41	0.78	0.41	0.77	0.42	0.77	0.42	0.75	0.43
<i>2</i>	0.01	0.11	0.01	0.08	0.01	0.12	0.01	0.07	0.01	0.12	0.01	0.08
<i>3</i>	0.01	0.08	0.01	0.09	0.01	0.08	0.01	0.08	0.01	0.08	0.01	0.08
<i>4</i>	0.01	0.07	0.01	0.10	0.01	0.08	0.01	0.10	0.01	0.08	0.01	0.11
<i>5</i>	0.01	0.08	0.00	0.03	0.01	0.09	0.00	0.04	0.01	0.07	0.00	0.04
<i>6</i>	0.00	0.05	0.00	0.07	0.00	0.05	0.01	0.07	0.00	0.06	0.01	0.08
<i>7</i>	0.14	0.35	0.14	0.35	0.15	0.35	0.16	0.36	0.16	0.36	0.16	0.37
<i>8</i>	0.01	0.11	0.03	0.16	0.01	0.12	0.03	0.17	0.01	0.11	0.03	0.17
<i>9</i>	0.01	0.09	0.01	0.08	0.01	0.09	0.01	0.08	0.01	0.09	0.01	0.08
<i>10</i>	0.01	0.07	0.01	0.11	0.01	0.08	0.01	0.12	0.01	0.08	0.01	0.12
<i>11</i>	0.00	0.06	0.00	0.05	0.00	0.07	0.00	0.05	0.00	0.06	0.00	0.06

Table A2. Frequency of TFS by race/ancestry

Ethnicity/race	Full sample					Restr. Age at TFS					Restr. Age at and length of TFS				
	No TFS	Only Father	Only Mother	Both Parents	Total	No TFS	Only Father	Only Mother	Both Parents	Total	No TFS	Only Father	Only Mother	Both Parents	Total
White	80	59	7	56	202	80	50	4	51	185	80	39	2	41	162
Mixed	18	24	3	19	64	18	21	1	16	56	18	20	0	14	52
Indian	105	136	12	58	311	105	120	12	55	292	105	101	11	45	262
Pakistani	25	124	4	61	214	25	67	4	47	143	25	48	3	31	107
Bangladeshi	17	118	6	35	176	17	47	5	21	90	17	25	4	14	60
Chinese	7	12	2	19	40	7	9	1	18	35	7	5	1	17	30
Other Asian	35	37	6	29	107	35	35	5	29	104	35	29	2	24	90
Black Caribbean	10	36	13	124	183	10	34	9	113	166	10	25	0	88	123
Black African	46	96	21	112	275	46	86	20	110	262	46	64	8	101	219
Arab	27	13	1	15	56	27	12	0	15	54	27	12	0	13	52
Other	13	12	3	13	41	13	10	3	13	39	13	8	0	11	32
Total	383	667	78	541	1669	383	491	64	488	1426	383	376	31	399	1189

Table A3. Bivariate association between experience of TFS and mental health for each sample definition, stratified by gender.

	Men			Women		
	Full	Restr. Age	Restr. Age and length	Full	Restr. Age	Restr. Age and length
Experience of TFS ref. No TFS						
Only father	-0.82 (0.90)	-0.75 (0.95)	-0.28 (0.99)	-0.94 (0.96)	-0.80 (1.03)	-1.03 (1.12)
Only mother	1.70 (1.68)	1.27 (1.79)	0.25 (2.22)	3.80+ (1.94)	3.91+ (2.15)	4.17 (3.44)
Both parents	-0.35 (0.93)	-0.19 (0.95)	-0.03 (0.98)	-0.58 (1.00)	-0.49 (1.03)	-0.88 (1.10)
Constant	50.64*** (0.72)	50.64*** (0.72)	50.64*** (0.71)	48.71*** (0.76)	48.71*** (0.76)	48.71*** (0.77)
Observations	796	685	577	873	741	612

+ p<0.1 * p<0.05 ** p<0.01 *** p<0.001

Table A4. Full models for *Error! Reference source not found.*

	Full sample		Restr. Age TFS		Restr. Age and Length TFS	
	Men	Women	Men	Women	Men	Women
Experience of TFS ref. No TFS						
Only father	-0.01 (0.95)	-0.81 (1.02)	-0.11 (0.99)	-1.00 (1.07)	0.42 (1.02)	-1.53 (1.17)
Only mother	0.94 (1.70)	2.88 (2.02)	0.30 (1.83)	3.15 (2.23)	-0.18 (2.25)	3.78 (3.48)
Both parents	0.20 (1.00)	-1.74 (1.10)	0.16 (1.02)	-1.92+ (1.14)	0.36 (1.07)	-3.07* (1.22)
Parents never married or separated	-0.95 (1.24)	-0.28 (1.15)	-0.90 (1.29)	-0.28 (1.21)	-1.56 (1.41)	-0.14 (1.44)
Death of a parent age 14	-3.49+ (1.93)	0.73 (1.58)	-3.69+ (2.05)	0.74 (1.78)	0.20 (2.73)	2.29 (2.34)
Age ref. 16-19						
20-24	-1.27 (1.30)	-1.73 (1.37)	-0.99 (1.33)	-1.39 (1.42)	-2.02 (1.40)	-1.54 (1.48)
25-29	-4.31** (1.55)	-0.11 (1.52)	-4.00* (1.64)	-0.20 (1.61)	-3.94* (1.77)	-0.58 (1.81)
30-34	-0.53 (1.51)	-2.51 (1.65)	-0.94 (1.65)	-3.11+ (1.84)	-1.62 (1.90)	-1.17 (2.16)
35-44	-3.32* (1.37)	-1.73 (1.45)	-1.88 (1.53)	-1.52 (1.64)	-1.98 (1.73)	-3.32 (2.03)
45-60	-3.41** (1.26)	-0.02 (1.36)	-3.18* (1.33)	0.32 (1.46)	-3.67* (1.45)	-0.52 (1.64)
Recent immigrant	1.17 (1.18)	2.18 (1.39)	1.59 (1.23)	2.78+ (1.47)	0.90 (1.43)	2.80+ (1.70)
Country ref. England						
Wales	-2.44 (3.72)	-1.28 (3.53)	-2.33 (4.04)	0.18 (4.23)	-0.59 (4.03)	-0.10 (4.29)
Scotland	-1.71 (3.22)	-4.67 (2.95)	-1.40 (3.21)	-5.24+ (3.15)	-1.22 (3.39)	-6.16+ (3.32)
Northern Ireland	7.51 (9.49)	2.13 (5.60)	6.33 (9.49)	11.71 (7.80)	6.13 (9.40)	12.51 (7.89)
Ancestry ref. Indian						
White	0.16 (1.30)	0.53 (1.51)	0.05 (1.37)	0.54 (1.57)	0.41 (1.47)	-0.56 (1.71)
Mixed	2.56 (1.94)	2.48 (2.10)	2.03 (2.05)	2.36 (2.26)	1.03 (2.12)	0.87 (2.40)
Pakistani	-2.85* (1.18)	0.84 (1.45)	-3.68** (1.29)	1.08 (1.73)	-3.89** (1.44)	-0.94 (1.97)
Bangladeshi	-1.28 (1.24)	-1.36 (1.63)	-0.09 (1.53)	-2.09 (2.08)	0.32 (1.79)	-4.33+ (2.50)
Chinese	-0.62 (2.15)	-0.00 (2.91)	-0.73 (2.21)	-1.19 (3.33)	-2.92 (2.43)	-0.87 (3.54)
Other Asian	0.68	2.66	0.68	2.80	0.58	1.41

	(1.53)	(1.84)	(1.58)	(1.88)	(1.68)	(2.06)
Black Caribbean	-1.77	1.30	-1.61	1.82	-1.28	2.25
	(1.48)	(1.51)	(1.55)	(1.58)	(1.70)	(1.77)
Black African	-0.11	3.15*	0.41	3.28*	-0.03	2.28
	(1.31)	(1.41)	(1.38)	(1.48)	(1.49)	(1.69)
Arab	-5.80*	1.15	-5.34*	1.58	-6.30*	0.57
	(2.26)	(2.21)	(2.33)	(2.27)	(2.45)	(2.36)
Other	-2.29	1.07	-0.87	1.50	-0.26	0.76
	(2.73)	(2.31)	(2.96)	(2.35)	(3.10)	(2.66)
Parental education ref. Left school without cert						
Did not go to school	-0.36	1.30	-0.74	1.41	-1.21	1.05
	(1.54)	(1.84)	(1.79)	(2.16)	(1.90)	(2.36)
Left school with some cert	1.95+	2.61*	1.55	3.23*	2.80*	3.78*
	(1.17)	(1.29)	(1.28)	(1.46)	(1.41)	(1.64)
Post-school cert	2.95*	2.64+	2.51+	2.64	2.96+	2.93
	(1.40)	(1.52)	(1.49)	(1.64)	(1.59)	(1.82)
University/higher degree	-0.45	0.63	-1.09	0.81	0.37	1.11
	(1.28)	(1.32)	(1.36)	(1.42)	(1.49)	(1.61)
DK	1.01	2.83*	0.89	2.82*	0.77	3.14*
	(1.02)	(1.12)	(1.10)	(1.22)	(1.21)	(1.37)
Wave number	-0.20	-0.36*	-0.20	-0.33*	-0.18	-0.48**
	(0.14)	(0.15)	(0.15)	(0.16)	(0.16)	(0.17)
Constant	52.95***	47.59***	52.81***	47.06***	52.72***	48.55***
	(1.66)	(1.82)	(1.76)	(1.96)	(1.92)	(2.21)
Observations	796	873	685	741	577	612
Standard errors in parentheses						

+ p<0.1 *p<0.05 **p<0.01 ***0.001

Table A5. Full models for *Error! Reference source not found.* (left-hand side)

	Full sample				Restr. Age TFS				Restr. Age and Length TFS			
	Father		Mother		Father		Mother		Father		Mother	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Age at TFS ref. No TFS												
Before birth	0.45 (1.32)	-0.04 (1.39)	3.01 (3.45)	-2.40 (2.95)								
Pre-school age	0.38 (1.02)	-1.17 (1.11)	0.68 (1.34)	-1.35 (1.39)	0.56 (1.04)	-1.11 (1.13)	0.81 (1.42)	-1.69 (1.44)	1.24 (1.12)	-1.18 (1.31)	0.79 (1.49)	-2.10 (1.61)
Pre-teen	-0.37 (1.02)	-3.48** (1.11)	0.20 (1.19)	-1.92 (1.38)	-0.11 (1.03)	-3.25** (1.14)	0.07 (1.20)	-2.07 (1.42)	0.26 (1.12)	-3.37* (1.33)	0.80 (1.28)	-3.68* (1.54)
Teen	-1.34 (1.22)	-0.73 (1.35)	-0.09 (1.29)	0.20 (1.54)	-1.41 (1.24)	-0.32 (1.40)	-0.17 (1.32)	-0.15 (1.58)	-1.03 (1.42)	-1.18 (1.68)	-0.92 (1.47)	-1.62 (1.86)
TFS father only			-0.00 (0.95)	-0.85 (1.02)			-0.11 (0.99)	-1.04 (1.07)			0.43 (1.02)	-1.52 (1.17)
TFS mother=1	0.47 (0.77)	-0.24 (0.89)			0.34 (0.82)	-0.43 (0.96)			0.00 (0.94)	-1.08 (1.13)		
Parents never married or separated	-0.71 (1.25)	0.09 (1.15)	-0.97 (1.25)	-0.12 (1.16)	-0.68 (1.30)	0.01 (1.21)	-0.84 (1.29)	-0.09 (1.21)	-1.25 (1.42)	0.00 (1.44)	-1.60 (1.42)	-0.14 (1.44)
Death of a parent age 14	-3.17 (1.95)	0.19 (1.60)	-3.47+ (1.93)	0.45 (1.60)	-3.29 (2.07)	0.12 (1.82)	-3.68+ (2.06)	0.52 (1.81)	0.33 (2.73)	1.58 (2.37)	0.19 (2.73)	1.91 (2.35)
Age ref. 16-19												
20-24	-1.24 (1.30)	-2.02 (1.37)	-1.16 (1.31)	-1.85 (1.38)	-0.98 (1.32)	-1.77 (1.43)	-0.91 (1.33)	-1.54 (1.43)	-1.92 (1.40)	-2.05 (1.49)	-1.87 (1.41)	-1.89 (1.48)
25-29	-4.31** (1.55)	-0.26 (1.52)	-4.38** (1.56)	-0.20 (1.53)	-3.98* (1.63)	-0.40 (1.61)	-4.00* (1.64)	-0.38 (1.61)	-3.78* (1.77)	-1.01 (1.80)	-3.93* (1.77)	-0.95 (1.82)
30-34	-0.59 (1.50)	-2.88+ (1.66)	-0.48 (1.50)	-2.32 (1.65)	-0.99 (1.64)	-3.30+ (1.84)	-0.88 (1.65)	-2.83 (1.84)	-1.59 (1.91)	-1.93 (2.17)	-1.50 (1.91)	-1.56 (2.16)
35-44	-3.41* (1.39)	-2.23 (1.47)	-3.38* (1.37)	-1.60 (1.46)	-1.81 (1.53)	-1.86 (1.64)	-1.86 (1.53)	-1.47 (1.65)	-1.89 (1.72)	-4.02* (2.04)	-1.92 (1.72)	-3.60+ (2.04)
45-60	-3.55** (1.27)	-0.55 (1.38)	-3.43** (1.26)	-0.30 (1.37)	-3.33* (1.34)	-0.25 (1.48)	-3.17* (1.33)	0.04 (1.47)	-3.80** (1.44)	-1.42 (1.65)	-3.61* (1.43)	-1.11 (1.64)
Recent immigrant	1.57 (1.20)	1.76 (1.41)	1.28 (1.19)	1.85 (1.41)	2.01 (1.25)	2.14 (1.49)	1.67 (1.23)	2.36 (1.49)	1.56 (1.50)	2.10 (1.75)	1.08 (1.44)	2.30 (1.76)
Country ref. England												
Wales	-2.43 (3.71)	-1.10 (3.53)	-2.40 (3.72)	-0.73 (3.55)	-2.13 (4.03)	0.24 (4.23)	-2.26 (4.04)	0.17 (4.24)	-0.29 (4.02)	-0.17 (4.29)	-0.34 (4.04)	-0.03 (4.30)
Scotland	-1.89 (3.22)	-5.01+ (2.94)	-1.78 (3.22)	-4.75 (2.96)	-1.56 (3.21)	-5.44+ (3.14)	-1.47 (3.21)	-5.37+ (3.16)	-1.32 (3.39)	-6.27+ (3.32)	-1.28 (3.39)	-6.16+ (3.33)
Northern Ireland	7.50 (9.49)	2.40 (5.58)	7.55 (9.50)	3.15 (5.64)	6.18 (9.48)	11.09 (7.81)	6.29 (9.49)	11.15 (7.85)	6.06 (9.39)	12.17 (7.91)	5.91 (9.40)	12.07 (7.94)
Ancestry ref. Indian												
White	0.09 (1.30)	0.26 (1.50)	0.09 (1.30)	0.44 (1.52)	0.08 (1.36)	0.32 (1.56)	0.07 (1.37)	0.42 (1.58)	0.43 (1.45)	-0.80 (1.70)	0.56 (1.46)	-0.78 (1.71)
Mixed	2.27 (1.95)	2.57 (2.10)	2.46 (1.95)	2.69 (2.12)	1.80 (2.05)	2.31 (2.26)	1.95 (2.05)	2.25 (2.27)	0.76 (2.12)	0.73 (2.40)	1.01 (2.11)	0.53 (2.41)
Pakistani	-3.12** (1.20)	0.50 (1.49)	-2.90* (1.18)	0.84 (1.46)	-3.89** (1.29)	1.22 (1.73)	-3.67** (1.28)	1.08 (1.74)	-4.09** (1.45)	-0.92 (1.97)	-3.91** (1.44)	-1.01 (1.98)

Bangladeshi	-1.74 (1.33)	-1.80 (1.67)	-1.34 (1.24)	-1.28 (1.64)	-0.42 (1.54)	-2.08 (2.07)	-0.11 (1.52)	-1.97 (2.08)	-0.08 (1.80)	-4.29+ (2.50)	0.30 (1.79)	-4.02 (2.50)
Chinese	-0.91 (2.16)	-0.40 (2.91)	-0.82 (2.16)	-0.05 (2.92)	-1.03 (2.22)	-1.39 (3.32)	-0.82 (2.22)	-1.14 (3.35)	-3.34 (2.44)	-1.27 (3.54)	-3.24 (2.44)	-0.82 (3.56)
Other Asian	0.49 (1.54)	2.95 (1.85)	0.60 (1.54)	2.69 (1.85)	0.48 (1.58)	2.97 (1.88)	0.67 (1.59)	2.88 (1.89)	0.44 (1.67)	1.51 (2.07)	0.46 (1.68)	1.32 (2.07)
Black Caribbean	-2.06 (1.50)	1.36 (1.51)	-2.07 (1.54)	1.53 (1.53)	-1.87 (1.56)	1.92 (1.59)	-1.90 (1.60)	1.94 (1.60)	-1.59 (1.71)	2.06 (1.78)	-1.51 (1.74)	1.99 (1.80)
Black African	-0.31 (1.32)	3.32* (1.41)	-0.17 (1.31)	3.01* (1.42)	0.26 (1.38)	3.43* (1.48)	0.37 (1.37)	3.19* (1.49)	-0.18 (1.48)	2.31 (1.69)	-0.07 (1.47)	2.12 (1.69)
Arab	-5.94** (2.25)	1.01 (2.20)	-5.90** (2.26)	1.09 (2.22)	-5.37* (2.30)	1.37 (2.26)	-5.35* (2.31)	1.38 (2.27)	-6.33** (2.42)	0.28 (2.35)	-6.41** (2.44)	0.23 (2.37)
Other	-2.59 (2.75)	1.28 (2.31)	-2.30 (2.73)	0.95 (2.33)	-1.07 (2.97)	1.61 (2.35)	-0.91 (2.96)	1.39 (2.36)	-0.49 (3.10)	0.47 (2.65)	-0.38 (3.10)	0.23 (2.67)
Parental education ref. Left school without cert												
Did not go to school	-0.40 (1.54)	1.21 (1.83)	-0.38 (1.55)	1.18 (1.84)	-0.79 (1.79)	1.35 (2.16)	-0.72 (1.79)	1.22 (2.17)	-1.32 (1.90)	1.15 (2.36)	-1.24 (1.90)	0.82 (2.37)
Left school with some cert	2.10+ (1.17)	2.42+ (1.30)	1.92 (1.17)	2.69* (1.30)	1.68 (1.28)	3.10* (1.46)	1.54 (1.28)	3.28* (1.47)	2.95* (1.41)	3.51* (1.64)	2.81* (1.40)	3.62* (1.65)
Post-school cert	3.02* (1.40)	2.58+ (1.52)	2.88* (1.41)	2.95+ (1.53)	2.53+ (1.49)	2.53 (1.64)	2.49+ (1.49)	2.87+ (1.65)	2.92+ (1.58)	2.72 (1.82)	2.85+ (1.59)	3.00 (1.82)
University/higher degree	-0.51 (1.28)	0.66 (1.32)	-0.51 (1.28)	0.85 (1.33)	-1.23 (1.37)	0.77 (1.42)	-1.17 (1.37)	0.94 (1.43)	0.28 (1.48)	1.09 (1.61)	0.24 (1.49)	1.29 (1.62)
DK	1.11 (1.02)	2.79* (1.12)	0.99 (1.02)	2.90* (1.13)	0.95 (1.11)	2.74* (1.22)	0.88 (1.11)	2.88* (1.23)	0.89 (1.21)	2.97* (1.37)	0.72 (1.21)	2.97* (1.38)
Wave number	-0.20 (0.14)	-0.36* (0.15)	-0.20 (0.14)	-0.36* (0.15)	-0.21 (0.15)	-0.34* (0.16)	-0.20 (0.15)	-0.32* (0.16)	-0.19 (0.16)	-0.49** (0.17)	-0.19 (0.16)	-0.48** (0.17)
Constant	53.12*** (1.65)	48.53*** (1.81)	53.04*** (1.67)	47.58*** (1.83)	52.85*** (1.73)	47.99*** (1.94)	52.81*** (1.76)	47.15*** (1.97)	52.69*** (1.88)	49.63*** (2.18)	52.74*** (1.90)	49.11*** (2.21)
Observations	796	873	796	873	685	741	685	741	577	612	577	612

Standard errors in parentheses
+ p<0.1 *p<0.05 **p<0.01 ***0.001

Table A6. Full models for Error! Reference source not found. (right-hand side).

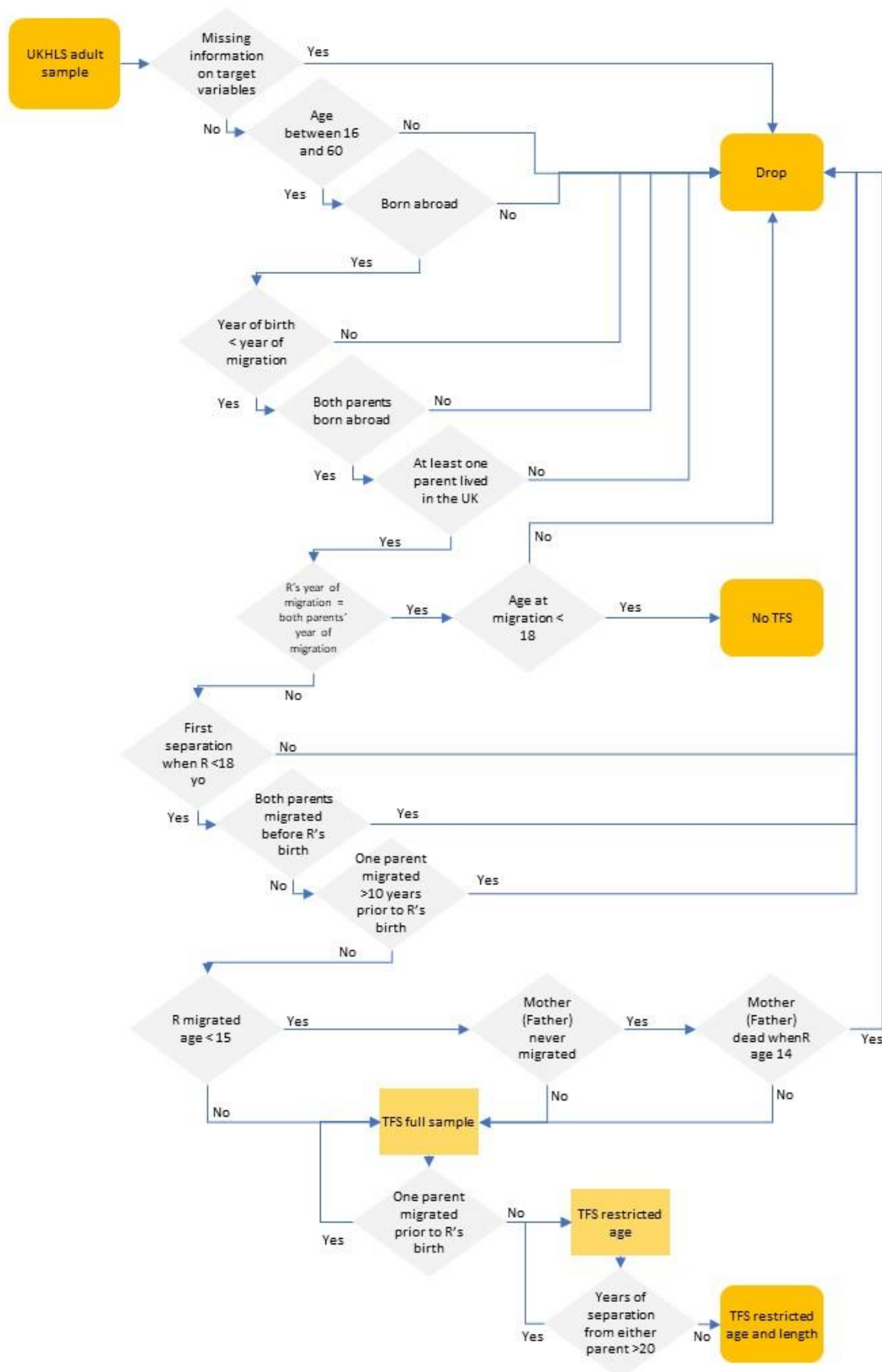
	Full sample				Restr. Age TFS				Restr. Age and Length TFS			
	Father		Mother		Father		Mother		Father		Mother	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Length of TFS ref. No TFS												
<2 years	-1.77 (1.23)	-1.48 (1.41)	-1.13 (1.49)	-1.74 (1.70)	-1.85 (1.28)	-1.26 (1.56)	-1.60 (1.52)	-1.82 (1.75)	-1.63 (1.30)	-1.04 (1.63)	-0.80 (1.56)	-2.43 (1.82)
2-5 years	0.32 (1.01)	-2.90** (1.10)	0.40 (1.25)	-1.61 (1.37)	0.46 (1.07)	-2.94* (1.21)	0.58 (1.29)	-2.06 (1.39)	0.98 (1.12)	-2.84* (1.31)	0.74 (1.32)	-2.99* (1.48)
6-10 years	-0.80 (1.10)	-1.04 (1.26)	1.05 (1.42)	-2.86+ (1.71)	-0.56 (1.19)	-1.85 (1.35)	0.82 (1.50)	-3.48+ (1.86)	0.72 (1.28)	-1.94 (1.56)	1.18 (1.54)	-3.97+ (2.08)
11+ years	1.09 (1.08)	-0.71 (1.13)	0.29 (1.20)	0.53 (1.27)	1.19 (1.18)	-0.91 (1.23)	-0.06 (1.30)	0.74 (1.38)	3.27* (1.53)	-1.46 (1.66)	-0.35 (2.02)	-1.63 (2.16)
TFS father only			0.18 (0.98)	-1.10 (1.06)			0.20 (1.02)	-1.41 (1.13)			0.44 (1.03)	-1.40 (1.18)
TFS mother=1	0.28 (0.76)	-0.47 (0.88)			0.14 (0.83)	-0.38 (0.96)			-0.61 (0.96)	-1.12 (1.14)		
Parents never married or separated	-1.19 (1.24)	-0.45 (1.17)	-1.02 (1.24)	-0.05 (1.16)	-1.14 (1.29)	-0.35 (1.23)	-0.93 (1.29)	0.06 (1.21)	-2.02 (1.42)	-0.19 (1.48)	-1.51 (1.42)	-0.10 (1.45)
Death of a parent age 14	-3.77+ (1.93)	0.78 (1.58)	-3.59+ (1.94)	0.80 (1.58)	-4.10* (2.06)	0.73 (1.79)	-3.78+ (2.07)	0.87 (1.79)	-0.17 (2.71)	2.17 (2.34)	0.18 (2.73)	2.17 (2.35)
Age ref. 16-19												
20-24	-1.50 (1.31)	-1.76 (1.38)	-1.34 (1.31)	-1.97 (1.38)	-1.26 (1.33)	-1.38 (1.43)	-1.07 (1.34)	-1.67 (1.43)	-2.31+ (1.40)	-1.58 (1.49)	-2.06 (1.40)	-1.80 (1.48)
25-29	-4.70** (1.56)	-0.31 (1.54)	-4.46** (1.58)	-0.54 (1.54)	-4.45** (1.65)	-0.47 (1.63)	-4.07* (1.67)	-0.75 (1.63)	-4.36** (1.77)	-0.86 (1.81)	-3.90* (1.79)	-0.86 (1.81)
30-34	-0.99 (1.51)	-2.60 (1.68)	-0.69 (1.54)	-2.75+ (1.66)	-1.44 (1.66)	-3.21+ (1.88)	-1.06 (1.71)	-3.35+ (1.85)	-2.11 (1.90)	-1.55 (2.20)	-1.60 (1.94)	-1.78 (2.17)
35-44	-3.74** (1.39)	-1.88 (1.50)	-3.52* (1.42)	-2.32 (1.51)	-2.24 (1.55)	-1.75 (1.69)	-2.03 (1.59)	-2.33 (1.71)	-2.28 (1.72)	-3.41+ (2.04)	-2.02 (1.74)	-3.54+ (2.04)
45-60	-3.80** (1.29)	-0.39 (1.40)	-3.67** (1.31)	-0.73 (1.40)	-3.50** (1.35)	0.02 (1.50)	-3.37* (1.38)	-0.41 (1.50)	-4.00** (1.44)	-0.71 (1.64)	-3.74* (1.45)	-0.95 (1.65)
Recent immigrant	0.86 (1.18)	2.36+ (1.39)	1.19 (1.21)	1.69 (1.42)	1.29 (1.23)	2.88+ (1.48)	1.66 (1.26)	2.25 (1.49)	0.91 (1.44)	2.83+ (1.72)	1.02 (1.44)	2.62 (1.71)
Country ref. England												
Wales	-2.55 (3.70)	-1.42 (3.54)	-2.28 (3.72)	-1.02 (3.54)	-2.64 (4.03)	-0.28 (4.25)	-2.04 (4.04)	0.08 (4.24)	-1.11 (4.01)	-0.47 (4.32)	-0.36 (4.04)	-0.24 (4.31)
Scotland	-1.95 (3.21)	-4.88+ (2.95)	-1.81 (3.22)	-4.97+ (2.96)	-1.58 (3.21)	-5.41+ (3.15)	-1.41 (3.21)	-5.37+ (3.15)	-1.64 (3.38)	-6.29+ (3.32)	-1.16 (3.40)	-6.22+ (3.33)
Northern Ireland	7.58 (9.46)	3.17 (5.58)	7.51 (9.49)	2.79 (5.60)	6.39 (9.46)	12.16 (7.82)	6.31 (9.49)	12.08 (7.82)	6.14 (9.34)	12.83 (7.92)	6.15 (9.40)	12.64 (7.93)
Ancestry ref. Indian												
White	0.05 (1.30)	-0.02 (1.52)	0.15 (1.31)	0.15 (1.52)	0.02 (1.36)	0.10 (1.58)	0.09 (1.37)	0.14 (1.57)	0.33 (1.45)	-0.85 (1.71)	0.38 (1.46)	-0.83 (1.71)
Mixed	2.73 (1.94)	2.43 (2.10)	2.38 (1.95)	2.33 (2.11)	2.32 (2.05)	2.23 (2.27)	1.91 (2.05)	2.19 (2.27)	1.40 (2.11)	0.69 (2.41)	0.96 (2.12)	0.63 (2.41)
Pakistani	-3.18** (1.19)	0.66 (1.46)	-3.00* (1.19)	0.64 (1.46)	-3.98** (1.29)	0.81 (1.75)	-3.87** (1.32)	0.78 (1.75)	-4.37** (1.44)	-1.12 (1.98)	-4.02** (1.46)	-0.95 (1.98)

Bangladeshi	-1.61 (1.26)	-1.61 (1.65)	-1.48 (1.26)	-1.53 (1.64)	-0.59 (1.57)	-2.24 (2.11)	-0.17 (1.57)	-2.50 (2.10)	-0.46 (1.82)	-4.21+ (2.52)	0.38 (1.82)	-4.06 (2.51)
Chinese	-0.89 (2.15)	-0.40 (2.91)	-0.89 (2.17)	-0.14 (2.91)	-0.99 (2.21)	-1.55 (3.34)	-1.05 (2.23)	-1.01 (3.33)	-3.29 (2.42)	-1.30 (3.55)	-3.24 (2.45)	-1.04 (3.55)
Other Asian	0.55 (1.53)	2.34 (1.85)	0.41 (1.56)	2.48 (1.85)	0.50 (1.58)	2.62 (1.89)	0.37 (1.61)	2.65 (1.89)	0.17 (1.67)	1.20 (2.07)	0.41 (1.70)	1.34 (2.08)
Black Caribbean	-2.07 (1.49)	1.19 (1.52)	-1.93 (1.50)	1.48 (1.52)	-1.95 (1.55)	1.81 (1.60)	-1.75 (1.56)	2.12 (1.60)	-1.88 (1.70)	2.11 (1.80)	-1.44 (1.70)	2.25 (1.79)
Black African	-0.28 (1.31)	2.92* (1.43)	-0.32 (1.33)	2.86* (1.43)	0.30 (1.37)	3.21* (1.50)	0.16 (1.39)	3.04* (1.49)	-0.41 (1.48)	2.27 (1.70)	-0.22 (1.50)	2.13 (1.70)
Arab	-5.83** (2.25)	0.81 (2.21)	-6.00** (2.25)	0.99 (2.21)	-5.34* (2.30)	1.29 (2.27)	-5.46* (2.31)	1.36 (2.27)	-6.39** (2.41)	0.32 (2.36)	-6.34** (2.43)	0.25 (2.37)
Other	-2.53 (2.73)	0.84 (2.32)	-2.29 (2.74)	1.02 (2.32)	-0.92 (2.96)	1.31 (2.36)	-0.87 (2.97)	1.48 (2.35)	-0.40 (3.08)	0.49 (2.66)	-0.23 (3.10)	0.48 (2.67)
Parental education ref. Left school without cert												
Did not go to school	-0.17 (1.54)	1.40 (1.84)	-0.39 (1.55)	1.32 (1.84)	-0.67 (1.79)	1.55 (2.17)	-0.83 (1.80)	1.40 (2.17)	-1.37 (1.89)	1.20 (2.37)	-1.32 (1.91)	0.95 (2.37)
Left school with some cert	2.14+ (1.17)	2.73* (1.30)	1.89 (1.17)	2.61* (1.30)	1.74 (1.28)	3.19* (1.47)	1.51 (1.28)	3.13* (1.47)	3.09* (1.40)	3.68* (1.64)	2.72+ (1.41)	3.67* (1.65)
Post-school cert	3.11* (1.40)	2.73+ (1.52)	3.05* (1.40)	2.77+ (1.52)	2.68+ (1.49)	2.62 (1.65)	2.64+ (1.49)	2.68 (1.65)	3.25* (1.58)	2.88 (1.82)	3.03+ (1.60)	2.95 (1.82)
University/higher degree	-0.30 (1.28)	0.61 (1.33)	-0.33 (1.28)	0.50 (1.33)	-0.89 (1.37)	0.66 (1.43)	-0.92 (1.37)	0.60 (1.43)	0.75 (1.48)	1.17 (1.62)	0.47 (1.49)	1.21 (1.61)
DK	1.19 (1.02)	2.74* (1.13)	1.05 (1.02)	2.89* (1.13)	1.08 (1.11)	2.64* (1.23)	0.95 (1.11)	2.82* (1.22)	1.07 (1.21)	3.02* (1.38)	0.79 (1.21)	3.12* (1.38)
Wave number	-0.21 (0.14)	-0.36* (0.15)	-0.19 (0.14)	-0.35* (0.15)	-0.22 (0.15)	-0.32* (0.16)	-0.20 (0.15)	-0.32* (0.16)	-0.23 (0.16)	-0.47** (0.17)	-0.18 (0.16)	-0.49** (0.17)
Constant	53.42*** (1.66)	48.49*** (1.86)	53.15*** (1.70)	48.14*** (1.86)	53.15*** (1.75)	47.91*** (1.99)	52.94*** (1.79)	47.76*** (1.99)	53.13*** (1.88)	49.08*** (2.19)	52.77*** (1.92)	48.98*** (2.21)
Observations	796	873	796	873	685	741	685	741	577	612	577	612

Standard errors in parentheses

+ p<0.1 * 0<0.05 ** p<0.01 ***p<0.001

Figure A1. Flowchart for the sample selection and group assignment



9. Appendix B – Experiences of TFS in the full UKHLS adult immigrants sample

In this appendix, I report the frequency of experiences of TFS – including those for which incomplete information is available for the migration of one or both parents. The sample is selected to include the first observation with valid information on mental health for adult immigrants, with both parents born abroad, aged between 16 and 61. Respondents who migrated in their year of birth or who declared a year of migration preceding their birth year are excluded.

For each parent, I compute a variable with seven categories describing respondents' experience of parental migration/TFS, as described in Table B1.

Table B1. Categories of the variables describing the experience of paternal(maternal) migration or TFS. R= respondent, P=father(mother).

Label	Conditions
0 Migrated together	Year of R's migration = Year of P's migration, AND Age of R at migration < 18
1 TFS	Year of R's migration \neq Year of P's migration, AND Year of P's migration \geq R's birth year, AND Estimated TFS < 20 years
2 TFS length 20+ years	Year of R's migration \neq Year of P's migration, AND Year of P's migration \geq R's birth year, AND Estimated TFS \geq 20 years
3 TFS P migrated before R's birth	Year of R's migration \neq Year of P's migration, AND Year of P's migration < R's birth year
4 P dead when R aged 14, R migrated age 14 or younger	P never lived in the UK, AND P dead when R aged 14, AND Age of R at migration < 15
5 P migrated to the UK, missing year of migration	P lived in the UK, AND Missing year of P's migration, OR: Missing information on whether P lived in the UK
6 R migrated as adult, no TFS from parent in childhood	Age of R at migration \geq 18, AND P never lived in the UK, OR R's age at P's migration \geq 18

In Table B2, I present the crosstabulation between the variables of experience of migration/TFS from each parent. Each cell is colour-coded to indicate whether the respondent migrated with their parents in childhood, experienced TFS from one or both parents, migrated in adulthood without experiencing TFS in childhood, or have insufficient information to assess the (non-

)experience of TFS during childhood. The detailed legend, frequencies and percentages for each macro-category are provided in Table B3.

Table B2. Crosstabulation between experience of TFS from the mother and from the father.

		Mother							Total	
		0	1	2	3	4	5	6		
Father	Migrated together in childhood	0	383	30	0	2	2	65	-	482
	TFS in childhood	1	395	783	3	10	5	160	63	1419
	TFS lasted 20+ years	2	1	6	26	0	0	0	32	65
	Parent migrated before R's birth	3	137	38	5	73	1	30	39	323
	P died and R migrated when R age<15,	4	19	24	0	0	5	1	-	49
	Insufficient information	5	347	203	6	35	2	645	179	1417
	Lived together throughout childhood	6	-	29	5	12	-	110	6969	7,125
	Total		1282	1113	45	132	15	1011	7282	10880

Overall, at least 20% of immigrant adults in the sample experienced TFS from at least one parent in childhood, with an additional 3% whose parents migrated to the UK before their birth, and might thus have experienced TFS as well. Only 3.5% of respondents in the target sample migrated as children with both their parents.

Table B3. Legend, frequencies, and percentages for Table B2.

	Total	%
Migrated together as children	383	3.52
TFS from only one parent in childhood	426	3.92
TFS from one parent in childhood, other unsure/NA	580	5.33
Possible TFS from at least one parent in childhood	329	3.02
TFS from both parents in childhood*	818	7.52
Insufficient information	1375	12.6
Migrated as adult, no TFS	6969	64.1
Total	10880	100

(*) the category includes individuals who migrated to the UK as minors and whose parents never migrated (N=330), who are excluded from the analyses in the article.

10. Appendix C: Additional analyses – heterogeneity by ancestry and migration cohort

In this section, I test whether the association between experience of TFS (no TFS, only from one parent, from both parents) and mental health varies by race/ancestry and by first mover’s immigration cohort. These analyses are run only on the most restrictive sample specification, as this is the specification which is expected to include the least measurement error. The categories for TFS from the father only and from the mother only are merged, due to the small size of the latter.

In the analysis of the association between experience of TFS and mental health by race/ancestry, individuals of mixed, Arabic or other race/ancestry are excluded from the analyses due to the small group sizes, and Chinese ancestry is merged with “other Asian”. The crosstabulation between experience of TFS and race/ancestry by respondent’s gender is presented in Table C1.

Table C1. Crosstabulation of race/ancestry by experience of TFS and by respondent’s gender

		White	Indian	Pakistani	Bangladeshi	Other Asian	Black Caribbean	Black African	Total
Men	No TFS	31	55	8	8	24	3	24	122
	Only one parent	17	65	36	18	21	8	28	176
	Both parents	27	26	18	8	21	34	45	152
	Total	75	146	62	34	66	45	97	450
Women	No TFS	49	50	17	9	18	7	22	172
	Only one parent	24	47	15	11	16	17	44	174
	Both parents	14	19	13	6	20	54	56	182
	Total	87	116	45	26	54	78	122	528

The first movers’ immigration cohort corresponds to the year of migration of the first mover between the father, mother and respondent – in the majority of cases, it corresponds to the father’s year of migration. The variable is then coded into three main categories, reflecting the main changes in migration trends and family reunification legislation as described in section 3. The first category groups respondents whose family migration started between 1950 and 1988, corresponding to the migrations from Commonwealth countries at the time where Commonwealth men could relatively easily settle and bring their dependants in the UK. The second category runs from 1989 until 2004, when migrations from the former British colonies reduced and migration from EC and post-communist countries – which still did not have access to the simplified family reunification under EC law – increased. The last category includes

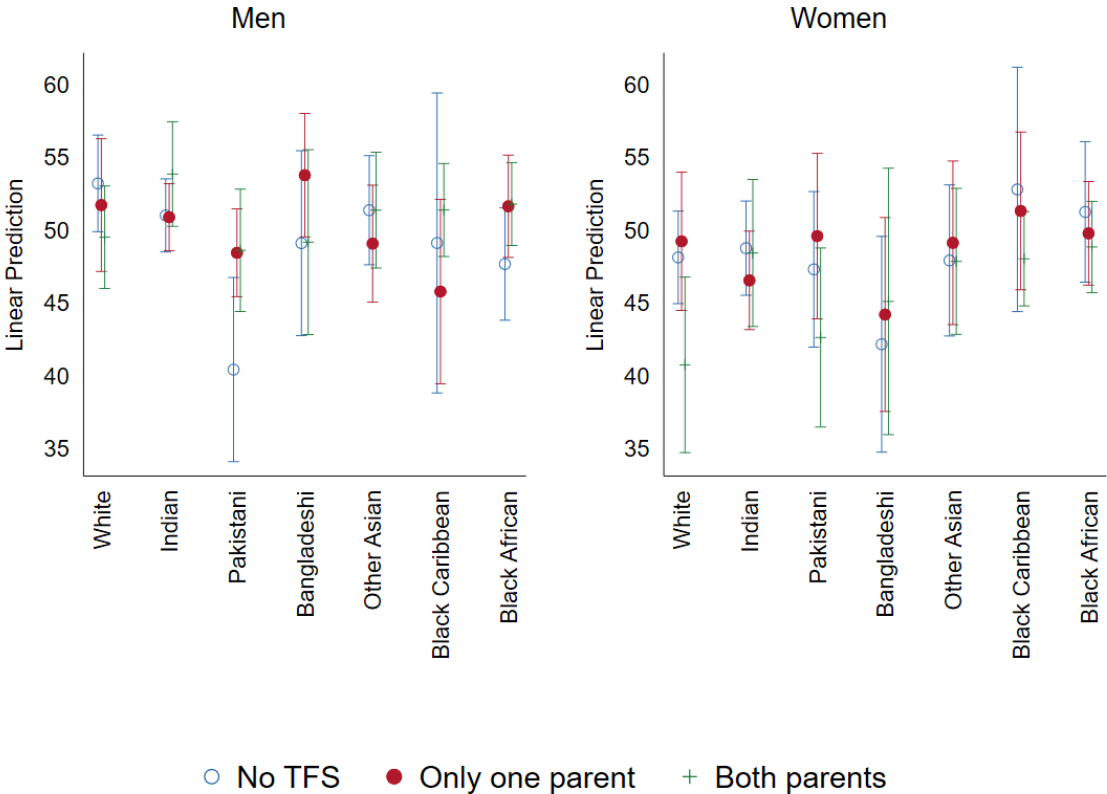
individuals whose family migration started from 2004 onwards, when individuals from countries affected by the EU enlargements could access family reunification under EU law. Table C2 presents the crosstabulation of first mover’s migration cohort by race, by respondent’s gender.

Table C2. Crosstabulation of first mover’s migration cohort by experience of TFS and by respondent’s gender

		1950-1988	1989-2003	2004-2020	Total
Men	No TFS	88	58	30	176
	Only one parent	120	56	32	208
	Both parents	88	49	56	193
	Total	296	163	118	577
Women	No TFS	103	71	33	207
	Only one parent	72	83	44	199
	Both parents	83	72	51	206
	Total	258	226	128	612

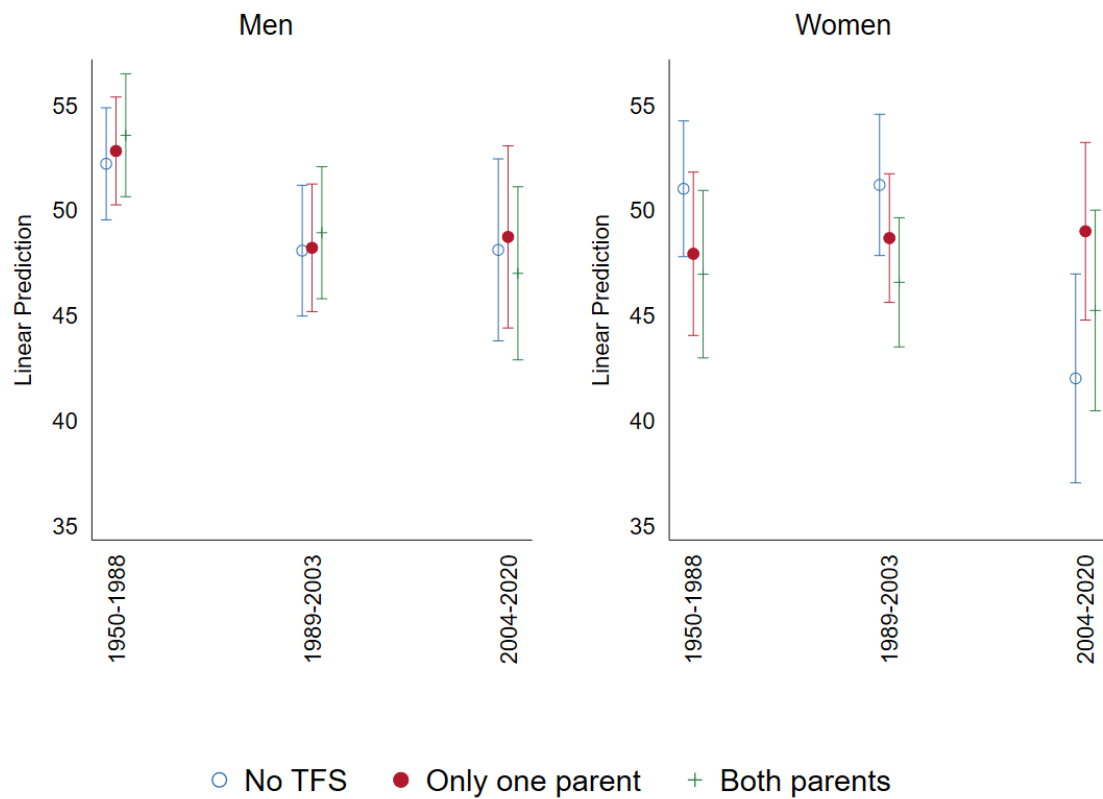
The results for the interaction of race/ancestry and experience of TFS on mental health are presented in Figure C1. Due to the small group sizes – especially for the category “no TFS” –, none of the predicted effects are statistically significant. However, it seems that the statistically significant difference in mental health between women who did not experience TFS as children and those who experienced it from both parents in the full model (ref. Figure 4) is mostly driven by white women and by women with Pakistani or Black Caribbean ancestry.

Figure C1. Linear predictions of mental health by the interaction between experience of TFS and race/ancestry, stratified by respondent's gender. Sample restricted by age at and length of TFS. N=450 for men, N=528 for women.



The results for the interaction of first mover's migration cohort and experience of TFS on mental health are presented in Figure C2. Among women whose family migration started before 2004, those who were transnationally separated from one or both parents during the migration process had, respectively, around 3 and 4 points worse mental health compared to those who migrated with both parents, net of control variables. These differences are statistically significant at the .1 and .05 thresholds, respectively. The linear predictions of mental health for women who experienced TFS from one or both parents after 2004 are in line with those of women from previous immigration cohorts, whereas women who did not experience TFS within this cohort tend to have much worse mental health compared to women with a similar family migration history, but who migrated before. This is likely due to the small group size.

Figure C2. Linear predictions of mental health by the interaction between experience of TFS and first mover's migration cohort, stratified by respondent's gender. Sample restricted by age at and length of TFS. N=577 for men, N=612 for women.



The coefficients and standard errors for Figures C1 and C2 are reported in Table C3.

Table C3. Coefficients and standard errors (in parentheses) from the regressions of mental health (SF-12 MCS) on the interactions between experience of TFS and race/ancestry (first two columns) and TFS and immigration cohort (third and fourth columns). The models are stratified by gender and control for parental separation, parental death at age 14, age category, race (only models 3 and 4), recent arrival, country of residence and wave of data collection.

	Men	Women	Men	Women
Experience of TFS (ref. No TFS)				
Only one parent	-1.49 (2.86)	1.10 (2.89)	0.61 (1.36)	-3.09+ (1.75)
Both parents	-3.69 (2.46)	-7.37* (3.42)	1.36 (1.52)	-4.06* (1.87)
Ancestry (ref. White)				
Indian	-2.20 (2.13)	0.63 (2.30)		
Pakistani	-12.77*** (3.64)	-0.82 (3.15)		
Bangladeshi	-4.10 (3.64)	-5.96 (4.11)		
Other Asian	-1.84 (2.56)	-0.21 (3.08)		
Black Caribbean	-4.09 (5.49)	4.66 (4.58)		
Black African	-5.53* (2.59)	3.12 (2.93)		
Indian x Only one parent	1.37 (3.32)	-3.31 (3.67)		
Indian x Both parents	6.53* (3.28)	7.04 (4.56)		
Pakistani x Only one parent	9.50* (4.56)	1.18 (4.91)		
Pakistani x Both parents	11.87* (4.59)	2.70 (5.38)		
Bangladeshi x Only one parent	6.15 (4.78)	0.94 (5.77)		
Bangladeshi x Both parents	3.76 (5.15)	10.31 (6.80)		
Other Asian x Only one parent	-0.80 (4.00)	0.11 (4.81)		
Other Asian x Both parents	3.69 (3.67)	7.31 (4.98)		
Black Caribbean x Only one parent	-1.84 (6.74)	-2.58 (5.72)		
Black Caribbean x Both parents	5.95 (5.94)	2.61 (5.58)		
Black African x Only one parent	5.45 (3.79)	-2.57 (4.04)		
Black African x Both parents	7.81* (3.79)	4.97 (4.04)		

	(3.36)	(4.41)		
First mover's migration cohort (ref. 1950-1988)				
1989-2003			-4.13+	0.19
			(2.42)	(2.78)
2004-2020			-4.09	-9.01*
			(2.99)	(3.49)
1989-2003 x Only one parent			-0.48	0.56
			(2.23)	(2.54)
1989-2003 x Both parents			-0.50	-0.57
			(2.34)	(2.65)
2004-2020 x Only one parent			0.00	10.08**
			(2.79)	(3.16)
2004-2020 x Both parents			-2.47	7.29*
			(2.75)	(3.15)
Constant	55.35***	48.12***	56.00***	50.01***
	(2.29)	(2.49)	(2.64)	(3.02)
Observations	525	528	577	612

+ p<0.1 * 0<0.05 ** p<0.01 ***p<0.001

11. Appendix D – Alternative measure of mental health: SWEMWBS

In this appendix, I replicate the analyses in the main text using an alternative measure of mental health, the short Warwirck-Edinburgh Mental Well-Being Scale (SWEMWBS). This scale is derived from a 7-items questionnaire, with scores ranging from 7 to 35, with higher scores indicating better mental health. The seven items composing the SWEMWB are all positively phrased and tap into positive affect (feeling optimistic about the future, useful, relaxed) and functioning (dealing with problems well, thinking clearly, feeling close to other people, being able to make up own mind about things). Therefore, the SWEMWBS differs from the SF-12 MCS, used in the main text of this article, in that it does not tap into negative affect.

The SWEMWB questionnaire was only administered, as part of the adult self-completion questionnaire, in waves 1, 4, 7, and 10 of the UKHLS. To maximise the size of the analytical sample in this Appendix, the latter does not entirely correspond to the one used in the main analyses in the article. This is because respondents with missing information on the SF-12 MCS are included in these supplemental analyses, and the first observation with valid information on the SWEMWBS is selected, so that some individuals might be observed, in this section, in a different wave than in the main text.

Tables D1 to D3 replicate the analyses reported in Tables A4, A5 and A6, respectively, using the SWEMWBS as dependent variable instead of the SF-12 MCS. The results using the SWEMWBS differ from those using the SF-12 MCS. In the latter, I find that women who were transnationally separated from both parents during childhood have statistically significantly worse mental health compared to women who migrated with their parents as children or teenagers, in the two restricted sample definitions (ref. Table A4). This is not the case when mental health is measured using the SWEMWBS (Table D1). However, the *direction* of the association between having been separated from both parents in childhood/teenagerhood and mental health is in line with a long-term detrimental effect of TFS on mental health, and the *size* of coefficients is similar between men and women – contrasting with the substantially null association between TFS in childhood and mental health among men when using the SF-12 MCS.

Looking at differences in the association between TFS and mental health by age at TFS from each parent, the results using the SWEMWBS (Table D2) again partially differ from those in the main text (Table A5). Measuring mental health with the SF-12 MCS, I found that only *women*

who experienced separation from either parent as pre-teens have significantly worse mental health than women who migrated with their parents. This association is significant concerning paternal migration in all sample definitions, and only in the most restrictive sample definition when maternal migration is considered. Using the SWEMWBS instead, I also find that only separation starting in pre-teen years is associated with significantly worse mental health in adulthood, however, I find that this is always the case for *men*, in all sample definitions and concerning paternal or maternal migration alike. For women, the difference in mental between those who experienced TFS as pre-teens and those who migrated with both parents is only statistically significant in the sample restricted by age at TFS, and concerning separation from mothers. However, the coefficient sizes for women are mostly in line with those for men.

Finally, results by length of separation from each parent are once again only partially in line with those reported in the main text. In line with results using the SF-12 MCS, using the SWEMWBS I find that women who experienced transnational separation from their *fathers* for between 2 and 10 years during their childhood have statistically significantly (at the 90% threshold) worse mental health than women who migrated with their parents as children or teenagers. However, using the SWEMWBS I find the same to be true also for men.

Overall, results using the SWEMWBS broadly support the ones using SF-12 MCS concerning the long-term association between TFS and mental health among women. Among men, results differ substantially depending on the measure of mental health adopted, as using the SF-12 MCS leads to finding no association between TFS and mental health among men, in both substantial and statistical significance terms. Using the SWEMWBS instead, men are found to also suffer long-term consequences of TFS in childhood in terms of mental health.

Substantially, the differences between the results using the SF-12 MCS and the SWEMWBS are likely due to different manifestations of mental distress between men and women. Given that the SWEMWBS taps into positive affect and functioning uniquely, whereas the SF-12 MCS also includes elements of *negative* affect, the results of this appendix suggest that men's *positive* mental health is mostly affected, in the long term, by early life experiences of TFS, whereas in women, early experiences of TFS seem to increase the chance of experiencing *depressive affect*, as well as reduced positive affect and functioning.

Table D1. Replication of the regression models in Table A4, using the SWEMWBS as dependent variable.

	Full sample		Restr. Age TFS		Restr. Age and Length TFS	
	Men	Women	Men	Women	Men	Women
Experience of TFS ref. No TFS						
Only father	-0.22 (0.54)	0.04 (0.51)	-0.27 (0.58)	-0.02 (0.54)	-0.20 (0.58)	-0.06 (0.60)
Only mother	0.66 (1.00)	2.01+ (1.10)	0.01 (1.12)	1.64 (1.19)	-0.06 (1.45)	1.79 (1.95)
Both parents	-0.73 (0.57)	-0.67 (0.58)	-0.73 (0.60)	-0.83 (0.59)	-0.75 (0.61)	-0.97 (0.65)
Parents never married or separated	-1.18 (0.75)	0.20 (0.72)	-0.97 (0.78)	0.50 (0.74)	-0.85 (0.80)	0.33 (0.77)
Death of a parent age 14	-1.97* (0.98)	0.58 (0.81)	-1.65 (1.05)	0.68 (0.86)	-0.71 (1.10)	-0.06 (0.97)
Age ref. 16-19						
20-24	-1.25 (0.90)	-0.06 (0.88)	-1.21 (1.02)	0.25 (0.96)	-1.82 (1.13)	0.43 (1.18)
25-29	-1.91* (0.82)	0.34 (0.77)	-1.70+ (0.93)	0.11 (0.85)	-0.22 (1.03)	-0.12 (1.03)
30-34	-1.17 (0.76)	0.83 (0.73)	-0.77 (0.82)	0.88 (0.77)	0.23 (0.87)	0.68 (0.87)
35-44	-1.01 (0.72)	-0.19 (0.60)	-0.85 (0.76)	-0.19 (0.62)	-0.64 (0.80)	-0.39 (0.76)
45-60	-0.58 (1.19)	1.04 (0.83)	-0.73 (1.33)	2.03* (0.94)	-0.76 (1.75)	1.80 (1.21)
Recent immigrant	0.03 (0.71)	0.88 (0.75)	0.39 (0.76)	1.01 (0.79)	1.32 (0.85)	0.47 (0.92)
Country ref. England						
Wales	5.34* (2.27)	-1.49 (1.78)	6.68* (2.60)	0.64 (2.01)	7.22** (2.52)	0.69 (2.07)
Scotland	0.44 (1.81)	0.62 (1.50)	0.51 (1.85)	0.26 (1.62)	0.74 (1.79)	0.27 (1.74)
Northern Ireland	5.15 (4.99)	-1.01 (2.67)	5.43 (5.11)	1.15 (3.71)	5.23 (4.93)	1.69 (3.81)
Ancestry ref. Indian						
White	1.56* (0.76)	0.49 (0.76)	1.30 (0.83)	0.58 (0.78)	1.31 (0.86)	0.48 (0.86)
Mixed	1.14 (1.02)	-0.30 (1.13)	1.38 (1.10)	-0.23 (1.20)	1.26 (1.11)	0.14 (1.29)
Pakistani	0.73 (0.71)	-0.70 (0.76)	0.49 (0.81)	-0.74 (0.89)	0.37 (0.88)	-0.34 (1.01)
Bangladeshi	-0.21 (0.75)	-0.85 (0.87)	-0.23 (0.94)	-1.11 (1.11)	-1.08 (1.09)	-0.99 (1.38)
Chinese	-0.32 (1.30)	-1.85 (1.48)	-0.35 (1.34)	-2.32 (1.72)	-0.32 (1.47)	-1.90 (1.87)
Other Asian	-0.31	0.28	-0.24	0.37	0.67	0.58

	(0.85)	(0.90)	(0.90)	(0.92)	(0.94)	(1.02)
Black Caribbean	-0.22	0.18	-0.29	0.35	0.14	0.54
	(0.83)	(0.78)	(0.89)	(0.82)	(0.96)	(0.92)
Black African	0.77	0.98	0.80	1.28+	1.69+	1.25
	(0.78)	(0.72)	(0.83)	(0.75)	(0.89)	(0.86)
Arab	-1.47	0.20	-1.57	0.13	-1.33	0.13
	(1.31)	(1.11)	(1.38)	(1.14)	(1.43)	(1.20)
Other	0.26	-0.85	0.72	-0.72	1.81	-1.09
	(1.70)	(1.18)	(1.84)	(1.19)	(1.91)	(1.39)
Parental education ref. Left school without cert						
Did not go to school	-2.18*	-0.27	-2.85*	-0.95	-3.06**	-1.08
	(0.93)	(0.95)	(1.11)	(1.10)	(1.13)	(1.18)
Left school with some cert	0.90	1.57*	0.80	1.84*	0.73	2.43**
	(0.67)	(0.65)	(0.75)	(0.73)	(0.80)	(0.82)
Post-school cert	0.04	0.44	-0.10	0.12	0.65	0.43
	(0.79)	(0.77)	(0.86)	(0.82)	(0.90)	(0.93)
University/higher degree	0.61	0.45	0.50	0.33	0.64	0.87
	(0.72)	(0.66)	(0.79)	(0.71)	(0.84)	(0.81)
DK	-0.65	0.82	-0.70	0.60	-0.72	0.62
	(0.61)	(0.59)	(0.67)	(0.63)	(0.71)	(0.71)
Wave number	0.08	0.04	0.10	0.07	0.24**	0.04
	(0.08)	(0.07)	(0.08)	(0.07)	(0.09)	(0.08)
Constant	26.11***	23.41***	25.87***	23.26***	24.44***	23.33***
	(0.96)	(0.95)	(1.04)	(1.01)	(1.12)	(1.14)
Observations	640	733	554	635	469	529

Standard errors in parentheses

+ p<0.1 *p<0.05 **p<0.01 ***0.001

Table D2. Replication of the regression models in Table A5, using the SWEMWBS as dependent variable.

	Full sample				Restr. Age TFS				Restr. Age and Length TFS			
	Father		Mother		Father		Mother		Father		Mother	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Age at TFS ref. No TFS												
Before birth	0.07	-0.08	1.04	-0.59								
	(0.77)	(0.75)	(1.93)	(1.61)								
Pre-school age	0.13	-0.42	0.14	-0.20	0.31	-0.33	0.08	-0.34	0.55	-0.46	0.00	-0.57
	(0.59)	(0.57)	(0.79)	(0.72)	(0.61)	(0.58)	(0.84)	(0.74)	(0.65)	(0.67)	(0.86)	(0.84)
Pre-teen	-1.29*	-0.87	-1.19+	-1.12	-1.09+	-0.73	-1.20+	-1.29+	-1.24+	-0.17	-1.63*	-1.21
	(0.59)	(0.58)	(0.68)	(0.72)	(0.62)	(0.58)	(0.70)	(0.74)	(0.65)	(0.69)	(0.73)	(0.82)
Teen	-0.64	-0.17	-0.36	0.52	-0.38	-0.12	-0.45	0.13	-0.10	-0.09	0.15	-0.49
	(0.70)	(0.73)	(0.78)	(0.84)	(0.73)	(0.75)	(0.81)	(0.86)	(0.83)	(0.90)	(0.89)	(1.02)
TFS father only	-0.17	-0.29			-0.33	-0.48			-0.43	-0.67		
	(0.46)	(0.47)			(0.50)	(0.50)			(0.56)	(0.60)		
TFS mother=1			-0.22	0.04			-0.27	-0.02			-0.21	-0.05
			(0.54)	(0.52)			(0.58)	(0.54)			(0.58)	(0.60)
Parents never married or separated	-0.71	0.02	-0.90	-0.04	-0.60	-0.01	-0.73	-0.07	-0.38	-0.40	-0.49	-0.42
	(0.72)	(0.60)	(0.72)	(0.60)	(0.76)	(0.62)	(0.76)	(0.62)	(0.80)	(0.77)	(0.80)	(0.76)
Death of a parent age 14	-0.56	0.97	-0.53	0.99	-0.77	1.99*	-0.69	2.03*	-0.86	1.73	-0.60	1.68
	(1.20)	(0.84)	(1.19)	(0.84)	(1.34)	(0.96)	(1.33)	(0.95)	(1.73)	(1.23)	(1.74)	(1.21)
Age ref. 16-19												
20-24	-0.99	0.07	-0.98	0.08	-0.82	0.36	-0.81	0.37	-0.68	0.27	-0.80	0.23
	(0.75)	(0.73)	(0.76)	(0.72)	(0.77)	(0.75)	(0.79)	(0.74)	(0.80)	(0.78)	(0.82)	(0.77)
25-29	-1.97*	0.58	-1.98*	0.57	-1.68	0.62	-1.64	0.61	-0.70	-0.16	-0.68	-0.15
	(0.98)	(0.82)	(0.98)	(0.82)	(1.04)	(0.86)	(1.05)	(0.86)	(1.10)	(0.97)	(1.10)	(0.97)
30-34	-1.25	-0.06	-1.12	0.07	-1.20	0.25	-1.07	0.37	-1.90+	0.23	-1.85	0.34
	(0.90)	(0.89)	(0.90)	(0.89)	(1.00)	(0.96)	(1.01)	(0.96)	(1.13)	(1.19)	(1.13)	(1.18)
35-44	-1.95*	0.29	-1.88*	0.39	-1.69+	0.03	-1.65+	0.08	-0.31	-0.25	-0.18	-0.24
	(0.83)	(0.79)	(0.82)	(0.78)	(0.93)	(0.86)	(0.93)	(0.85)	(1.02)	(1.04)	(1.02)	(1.03)

45-60	-1.24	0.71	-1.19	0.68	-0.87	0.74	-0.77	0.69	0.06	0.60	0.19	0.50
	(0.76)	(0.74)	(0.76)	(0.73)	(0.82)	(0.79)	(0.82)	(0.78)	(0.86)	(0.88)	(0.85)	(0.87)
Recent immigrant	0.21	0.71	0.15	0.62	0.51	0.81	0.46	0.74	1.36	0.39	1.22	0.35
	(0.72)	(0.77)	(0.72)	(0.76)	(0.76)	(0.81)	(0.76)	(0.80)	(0.89)	(0.95)	(0.86)	(0.95)
Country ref. England												
Wales	5.23*	-1.25	5.21*	-1.16	6.72**	0.62	6.58*	0.66	7.33**	0.71	6.93**	0.71
	(2.26)	(1.78)	(2.27)	(1.79)	(2.59)	(2.02)	(2.60)	(2.02)	(2.50)	(2.08)	(2.51)	(2.08)
Scotland	0.38	0.51	0.32	0.52	0.51	0.17	0.42	0.16	0.76	0.24	0.70	0.25
	(1.80)	(1.51)	(1.81)	(1.51)	(1.84)	(1.62)	(1.84)	(1.62)	(1.78)	(1.74)	(1.78)	(1.74)
Northern Ireland	5.20	-0.62	5.25	-0.55	5.44	0.94	5.46	0.85	5.35	1.55	5.30	1.53
	(4.98)	(2.68)	(4.99)	(2.70)	(5.09)	(3.73)	(5.10)	(3.73)	(4.90)	(3.83)	(4.91)	(3.83)
Ancestry ref. Indian												
White	1.41+	0.39	1.43+	0.44	1.20	0.48	1.25	0.50	1.15	0.34	1.25	0.38
	(0.76)	(0.76)	(0.76)	(0.76)	(0.81)	(0.78)	(0.82)	(0.78)	(0.84)	(0.85)	(0.84)	(0.86)
Mixed	0.86	-0.25	1.00	-0.28	1.18	-0.25	1.30	-0.30	1.02	0.01	1.19	-0.01
	(1.03)	(1.14)	(1.03)	(1.14)	(1.10)	(1.20)	(1.10)	(1.20)	(1.11)	(1.30)	(1.10)	(1.30)
Pakistani	0.47	-0.74	0.67	-0.77	0.32	-0.71	0.51	-0.83	0.20	-0.40	0.43	-0.46
	(0.72)	(0.78)	(0.71)	(0.76)	(0.81)	(0.90)	(0.81)	(0.89)	(0.87)	(1.02)	(0.87)	(1.02)
Bangladeshi	-0.51	-0.95	-0.27	-0.97	-0.40	-1.12	-0.23	-1.23	-1.21	-0.89	-1.03	-0.95
	(0.80)	(0.90)	(0.75)	(0.88)	(0.95)	(1.12)	(0.94)	(1.12)	(1.10)	(1.39)	(1.09)	(1.39)
Chinese	-0.69	-1.98	-0.45	-1.91	-0.69	-2.39	-0.42	-2.28	-0.76	-2.02	-0.11	-1.95
	(1.30)	(1.49)	(1.30)	(1.48)	(1.34)	(1.73)	(1.34)	(1.73)	(1.47)	(1.88)	(1.47)	(1.88)
Other Asian	-0.35	0.36	-0.30	0.31	-0.24	0.42	-0.18	0.39	0.72	0.45	0.81	0.51
	(0.85)	(0.91)	(0.85)	(0.91)	(0.90)	(0.93)	(0.90)	(0.92)	(0.93)	(1.02)	(0.93)	(1.02)
Black Caribbean	-0.45	0.15	-0.59	0.23	-0.49	0.29	-0.59	0.31	-0.21	0.48	-0.12	0.40
	(0.83)	(0.79)	(0.86)	(0.80)	(0.89)	(0.82)	(0.92)	(0.83)	(0.95)	(0.92)	(0.98)	(0.93)
Black African	0.55	1.03	0.66	0.85	0.64	1.30+	0.75	1.16	1.47+	1.14	1.65+	1.15
	(0.78)	(0.73)	(0.78)	(0.73)	(0.83)	(0.75)	(0.83)	(0.75)	(0.87)	(0.87)	(0.87)	(0.86)
Arab	-1.64	0.13	-1.60	0.19	-1.62	0.01	-1.59	0.04	-1.25	-0.04	-1.05	-0.02
	(1.30)	(1.12)	(1.30)	(1.12)	(1.36)	(1.14)	(1.37)	(1.14)	(1.40)	(1.19)	(1.42)	(1.20)

Other	0.17 (1.70)	-0.75 (1.19)	0.33 (1.70)	-0.86 (1.18)	0.65 (1.83)	-0.66 (1.20)	0.76 (1.84)	-0.75 (1.19)	1.65 (1.89)	-1.25 (1.39)	1.82 (1.90)	-1.23 (1.39)
Parental education ref. Left school without cert												
Did not go to school	-2.22* (0.93)	-0.31 (0.96)	-2.15* (0.93)	-0.36 (0.96)	-2.92** (1.11)	-0.99 (1.10)	-2.81* (1.11)	-1.08 (1.10)	-3.28** (1.13)	-1.10 (1.19)	-2.94** (1.13)	-1.14 (1.19)
Left school with some cert	1.00 (0.67)	1.57* (0.66)	0.87 (0.67)	1.58* (0.65)	0.88 (0.75)	1.84* (0.73)	0.80 (0.75)	1.83* (0.73)	0.76 (0.79)	2.41** (0.82)	0.71 (0.79)	2.36** (0.82)
Post-school cert	0.09 (0.79)	0.48 (0.77)	0.06 (0.79)	0.58 (0.77)	-0.11 (0.86)	0.12 (0.83)	-0.08 (0.86)	0.20 (0.83)	0.63 (0.89)	0.42 (0.93)	0.77 (0.90)	0.43 (0.93)
University/higher degree	0.67 (0.72)	0.48 (0.66)	0.64 (0.72)	0.56 (0.67)	0.50 (0.79)	0.31 (0.71)	0.48 (0.79)	0.38 (0.71)	0.62 (0.83)	0.91 (0.81)	0.67 (0.83)	0.95 (0.81)
DK	-0.51 (0.61)	0.83 (0.59)	-0.65 (0.61)	0.77 (0.59)	-0.59 (0.67)	0.60 (0.63)	-0.69 (0.67)	0.55 (0.63)	-0.58 (0.71)	0.60 (0.71)	-0.65 (0.71)	0.55 (0.72)
Wave number	0.08 (0.08)	0.04 (0.07)	0.08 (0.08)	0.04 (0.07)	0.10 (0.08)	0.07 (0.07)	0.10 (0.08)	0.08 (0.07)	0.23* (0.09)	0.03 (0.08)	0.23** (0.09)	0.03 (0.08)
Constant	26.25*** (0.96)	23.78*** (0.95)	26.12*** (0.97)	23.47*** (0.95)	25.95*** (1.03)	23.62*** (1.01)	25.84*** (1.04)	23.41*** (1.02)	24.59*** (1.09)	23.62*** (1.13)	24.41*** (1.10)	23.56*** (1.14)
Observations	640	733	640	733	554	635	554	635	469	529	469	529

Standard errors in parentheses

+ p<0.1 *p<0.05 **p<0.01 ***0.001

Table D3. Replication of the regression models in Table A6, using the SWEMWBS as dependent variable.

	Full sample				Restr. Age TFS				Restr. Age and Length TFS			
	Father		Mother		Father		Mother		Father		Mother	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Length of TFS ref. No TFS												
<2 years	-0.95 (0.71)	0.21 (0.73)	-1.10 (0.85)	-0.44 (0.89)	-0.79 (0.75)	0.71 (0.78)	-1.24 (0.89)	-0.63 (0.90)	-0.66 (0.74)	0.92 (0.83)	-1.39 (0.89)	-0.46 (0.95)
2-5 years	-0.42 (0.59)	-0.99+ (0.57)	-0.02 (0.73)	-0.84 (0.72)	-0.25 (0.64)	-1.13+ (0.62)	0.02 (0.77)	-1.05 (0.73)	-0.00 (0.65)	-0.91 (0.67)	-0.04 (0.77)	-1.35+ (0.78)
6-10 years	-1.33* (0.66)	-1.17+ (0.67)	-1.28 (0.82)	-0.45 (0.93)	-1.37+ (0.74)	-1.23+ (0.70)	-1.37 (0.87)	-0.42 (0.98)	-1.26 (0.78)	-1.00 (0.82)	-1.52+ (0.88)	-0.86 (1.14)
11+ years	0.41 (0.62)	0.14 (0.59)	0.32 (0.69)	-0.09 (0.67)	0.60 (0.70)	0.13 (0.63)	0.37 (0.77)	-0.11 (0.72)	1.34 (0.88)	0.59 (0.86)	0.95 (1.20)	-0.01 (1.13)
TFS father only	-0.28 (0.46)	-0.40 (0.46)			-0.41 (0.51)	-0.54 (0.50)			-0.66 (0.58)	-0.82 (0.60)		
TFS mother=1			-0.28 (0.56)	0.15 (0.54)			-0.41 (0.60)	0.07 (0.57)			-0.19 (0.58)	-0.03 (0.60)
Parents never married or separated	-1.04 (0.72)	-0.19 (0.61)	-0.95 (0.72)	-0.09 (0.61)	-0.84 (0.76)	-0.18 (0.63)	-0.81 (0.76)	-0.11 (0.63)	-0.61 (0.80)	-0.48 (0.78)	-0.62 (0.80)	-0.46 (0.77)
Death of a parent age 14	-0.69 (1.19)	1.19 (0.83)	-0.73 (1.19)	1.10 (0.83)	-0.86 (1.33)	2.22* (0.93)	-0.92 (1.34)	2.08* (0.94)	-0.71 (1.73)	1.97 (1.21)	-0.85 (1.74)	1.79 (1.21)
Age ref. 16-19												
20-24	-1.29+ (0.75)	0.13 (0.72)	-1.20 (0.75)	0.16 (0.72)	-1.12 (0.77)	0.47 (0.74)	-1.05 (0.78)	0.45 (0.74)	-1.07 (0.80)	0.31 (0.77)	-0.98 (0.80)	0.29 (0.77)
25-29	-2.34* (0.99)	0.40 (0.82)	-2.13* (1.00)	0.59 (0.83)	-2.10* (1.06)	0.48 (0.86)	-1.84+ (1.07)	0.60 (0.87)	-1.17 (1.11)	-0.34 (0.97)	-0.93 (1.11)	-0.21 (0.97)
30-34	-1.53+ (0.90)	-0.12 (0.90)	-1.43 (0.92)	0.05 (0.90)	-1.55 (1.02)	0.14 (0.98)	-1.50 (1.05)	0.27 (0.98)	-2.23+ (1.13)	0.09 (1.19)	-2.16+ (1.15)	0.20 (1.18)
35-44	-2.14* (0.83)	0.14 (0.79)	-2.18* (0.85)	0.43 (0.80)	-2.01* (0.94)	-0.08 (0.87)	-2.09* (0.97)	0.13 (0.88)	-0.51 (1.02)	-0.26 (1.03)	-0.55 (1.03)	-0.25 (1.03)

45-60	-1.40+	0.59	-1.44+	0.74	-0.97	0.73	-1.05	0.71	0.08	0.65	0.00	0.47
	(0.77)	(0.74)	(0.78)	(0.75)	(0.83)	(0.79)	(0.85)	(0.79)	(0.86)	(0.87)	(0.87)	(0.87)
Recent immigrant	-0.09	0.85	-0.12	0.87	0.26	1.00	0.17	0.93	1.23	0.56	1.07	0.43
	(0.71)	(0.75)	(0.73)	(0.77)	(0.75)	(0.79)	(0.77)	(0.81)	(0.85)	(0.92)	(0.86)	(0.93)
Country ref. England												
Wales	5.03*	-1.36	5.39*	-1.28	6.19*	0.34	6.73**	0.63	6.64**	0.30	7.33**	0.73
	(2.26)	(1.78)	(2.27)	(1.79)	(2.59)	(2.01)	(2.60)	(2.02)	(2.50)	(2.08)	(2.52)	(2.08)
Scotland	0.27	0.69	0.34	0.54	0.39	0.32	0.43	0.20	0.54	0.38	0.63	0.31
	(1.80)	(1.50)	(1.80)	(1.51)	(1.84)	(1.61)	(1.84)	(1.62)	(1.78)	(1.73)	(1.79)	(1.74)
Northern Ireland	5.08	-0.34	5.35	-0.31	5.53	1.42	5.68	1.38	5.42	1.96	5.37	1.92
	(4.97)	(2.66)	(4.99)	(2.68)	(5.08)	(3.70)	(5.10)	(3.73)	(4.90)	(3.80)	(4.92)	(3.82)
Ancestry ref. Indian												
White	1.43+	0.29	1.34+	0.44	1.18	0.41	1.10	0.49	1.13	0.38	1.19	0.38
	(0.76)	(0.76)	(0.76)	(0.76)	(0.81)	(0.78)	(0.82)	(0.78)	(0.84)	(0.85)	(0.84)	(0.86)
Mixed	1.20	-0.36	1.08	-0.27	1.48	-0.38	1.40	-0.26	1.46	-0.09	1.29	-0.00
	(1.02)	(1.13)	(1.02)	(1.13)	(1.10)	(1.20)	(1.10)	(1.20)	(1.11)	(1.29)	(1.11)	(1.29)
Pakistani	0.61	-0.76	0.43	-0.78	0.43	-0.89	0.17	-0.82	0.21	-0.49	0.13	-0.42
	(0.71)	(0.76)	(0.71)	(0.76)	(0.81)	(0.89)	(0.82)	(0.90)	(0.87)	(1.01)	(0.88)	(1.02)
Bangladeshi	-0.30	-0.77	-0.45	-0.92	-0.47	-1.08	-0.63	-1.09	-1.16	-0.79	-1.45	-0.91
	(0.77)	(0.89)	(0.76)	(0.88)	(0.97)	(1.13)	(0.97)	(1.13)	(1.12)	(1.39)	(1.11)	(1.39)
Chinese	-0.56	-2.05	-0.78	-1.91	-0.53	-2.60	-0.81	-2.41	-0.46	-2.14	-0.80	-2.06
	(1.30)	(1.48)	(1.31)	(1.49)	(1.34)	(1.73)	(1.34)	(1.73)	(1.46)	(1.87)	(1.47)	(1.88)
Other Asian	-0.33	0.27	-0.58	0.33	-0.27	0.38	-0.53	0.37	0.60	0.57	0.37	0.52
	(0.85)	(0.91)	(0.86)	(0.91)	(0.90)	(0.92)	(0.92)	(0.93)	(0.93)	(1.01)	(0.94)	(1.02)
Black Caribbean	-0.32	0.34	-0.40	0.25	-0.38	0.48	-0.52	0.32	0.10	0.71	-0.10	0.52
	(0.83)	(0.79)	(0.83)	(0.80)	(0.89)	(0.83)	(0.89)	(0.84)	(0.95)	(0.93)	(0.95)	(0.93)
Black African	0.66	1.00	0.56	0.99	0.70	1.37+	0.58	1.24	1.48+	1.41	1.45	1.15
	(0.77)	(0.73)	(0.79)	(0.73)	(0.83)	(0.76)	(0.84)	(0.76)	(0.87)	(0.87)	(0.88)	(0.86)
Arab	-1.66	0.13	-1.91	0.21	-1.71	0.06	-1.95	0.06	-1.47	0.15	-1.66	-0.04
	(1.30)	(1.11)	(1.30)	(1.12)	(1.36)	(1.13)	(1.37)	(1.14)	(1.40)	(1.19)	(1.41)	(1.20)

Other	0.26 (1.69)	-0.90 (1.18)	0.14 (1.70)	-0.75 (1.19)	0.78 (1.83)	-0.77 (1.19)	0.57 (1.84)	-0.67 (1.20)	1.80 (1.89)	-1.15 (1.38)	1.63 (1.90)	-1.23 (1.39)
Parental education ref. Left school without cert												
Did not go to school	-1.83+ (0.94)	-0.18 (0.95)	-2.03* (0.94)	-0.38 (0.96)	-2.47* (1.12)	-0.80 (1.10)	-2.69* (1.11)	-1.09 (1.10)	-2.77* (1.14)	-0.90 (1.18)	-2.91* (1.13)	-1.14 (1.19)
Left school with some cert	0.99 (0.67)	1.55* (0.65)	0.86 (0.67)	1.60* (0.66)	0.91 (0.75)	1.70* (0.73)	0.77 (0.75)	1.81* (0.74)	0.84 (0.79)	2.23** (0.82)	0.72 (0.80)	2.28** (0.83)
Post-school cert	0.05 (0.79)	0.47 (0.77)	0.13 (0.79)	0.54 (0.77)	-0.07 (0.86)	0.06 (0.82)	0.01 (0.87)	0.14 (0.83)	0.70 (0.89)	0.35 (0.93)	0.82 (0.90)	0.39 (0.93)
University/higher degree	0.63 (0.72)	0.33 (0.67)	0.64 (0.72)	0.45 (0.67)	0.57 (0.79)	0.16 (0.71)	0.52 (0.79)	0.25 (0.71)	0.81 (0.83)	0.82 (0.81)	0.73 (0.84)	0.90 (0.81)
DK	-0.60 (0.61)	0.67 (0.59)	-0.61 (0.61)	0.76 (0.60)	-0.61 (0.67)	0.43 (0.63)	-0.65 (0.67)	0.51 (0.64)	-0.58 (0.71)	0.42 (0.72)	-0.66 (0.71)	0.50 (0.72)
Wave number	0.05 (0.08)	0.05 (0.07)	0.08 (0.08)	0.05 (0.07)	0.07 (0.08)	0.09 (0.07)	0.11 (0.08)	0.08 (0.07)	0.20* (0.09)	0.05 (0.08)	0.23* (0.09)	0.03 (0.08)
Constant	26.58*** (0.98)	23.94*** (0.97)	26.40*** (0.99)	23.40*** (0.97)	26.23*** (1.05)	23.70*** (1.03)	26.20*** (1.06)	23.39*** (1.03)	24.77*** (1.10)	23.60*** (1.12)	24.75*** (1.11)	23.61*** (1.14)
Observations	640	733	640	733	554	635	554	635	469	529	469	529

Standard errors in parentheses

+ p<0.1 * 0<0.05 ** p<0.01 ***p<0.001

A scarring effect of having been left behind: additional analyses

This section complements chapter two by comparing how the measure of experience of transnational family separation (TFS) in the chapter compares to other information in the data. In chapter two, TFS is measured based on self-reported information on the year of first migration (or non-migration) of each parent and of the respondent themselves. Because the data do not contain information on circular or return migration of the parents or of the respondent, this might lead to error in the assignment of individuals as having experienced TFS (if one or both their parents migrated to the UK before the respondent's birth) or in the assessment of the length of separation.

Understanding Society contain an alternative way to measure parental separation during the respondent's youth, without however explicitly considering transnational separation. Respondents were asked if they lived *continuously* with both their biological parents until age 16 and, if they did not, at which age they stopped living with their biological parents. In this section, I compare the information on experience of TFS by age 16 as measured through the years of first migration (of respondents and of their parents) with self-reported information on non-continuous residence with both parents by age 16.

Table 1 Experience of TFS before age 17 by having lived continuously with both parents until age 16,

<i>Experience of TFS by age 16:</i>	All		TFS age >0		+ Excl. length outliers		+ Excl. separated parents	
	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>
	<i>Lived continuously with both biological parents until age 16</i>							
<i>No TFS</i>	92.68	7.32	92.68	7.32	92.68	7.32	97.71	2.29
<i>Only father</i>	77.85	22.15	74.42	25.58	75.97	24.03	89.68	10.32
<i>Only mother</i>	66.67	33.33	63.64	36.36	67.50	32.50	87.10	12.90
<i>Both parents</i>	63.42	36.58	58.96	41.04	58.43	41.57	70.65	29.35
<i>Total</i>	75.93	24.07	74.19	25.81	75.62	24.38	86.90	13.10

Table 1 reports the crosstabulation between experience of TFS by age 16 and having lived continuously with both parents until age 16 for each analytical sample (complete sample, step-wise exclusion of: respondents with at least one parent migrated before birth, respondents who were separated from a parent for longer than 95% of the full sample, respondents whose parents never lived together or got separated/divorced when the respondent was younger than 14). The information from the two variables overlaps quite well for those who are categorised as not having experienced TFS by age 16: 93% of this group also declared to have lived continuously with both biological parents until age 16. To the contrary, most individuals who seem to have

experienced TFS also stated to have lived continuously with both parents until age 16. The discrepancy is particularly sharp for individuals who were only transnationally separated from their fathers, as 78% declared to have lived continuously with both parents until age 16. Even among those who migrated in a different year as both parents, only about 37% reported to have lived separately from either or both parents by age 16.

Step-wise exclusion of the groups in which we would expect higher measurement error in the assessment of TFS based on the years of migration (those whose parents migrated before the respondent’s birth and those who experienced TFS for longer than 95% of the sample) does not significantly reduce the discrepancy between the two sources of information. Excluding individuals whose parents were never together or who got separated/divorced by respondent’s age 14 instead *increases* the discrepancy, further supporting the impression that respondent interpreted the question on continuous residence with both parents until age 16 as not being relevant for cases of (temporary) transnational separation.

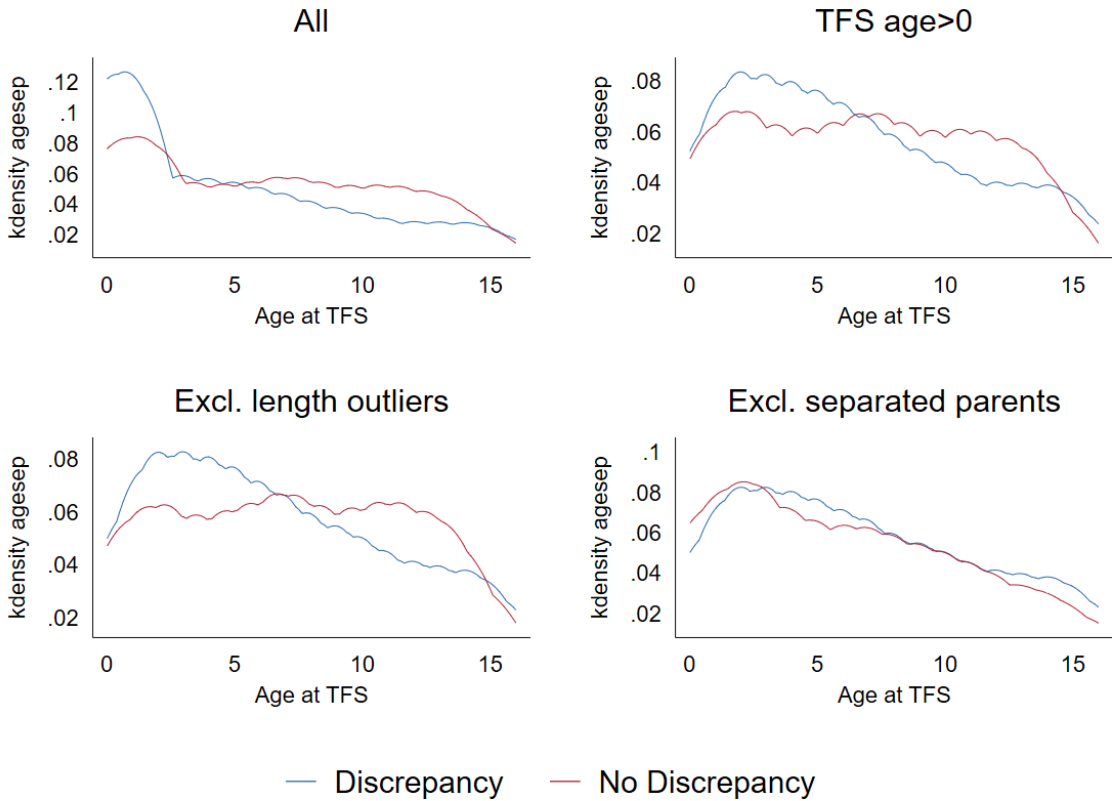


Figure 1 Distribution of age at TFS by discrepancy between information on TFS and on continuous residency with both parents until age 16, by sample

In Figure 1 and Figure 2 I present the distribution of, respectively, age at first TFS and maximum length of TFS by (non) discrepancy between the information on TFS and on

continuous residency with both parents until age 16 for each analytical sample. From Figure 1 we see that the group for which the information from the two sources coincides is more likely to have experienced TFS starting from pre-school age. However, this difference in age at TFS distribution between the two groups disappears once respondents whose parents were never together or who separated/divorced are excluded from the analyses.

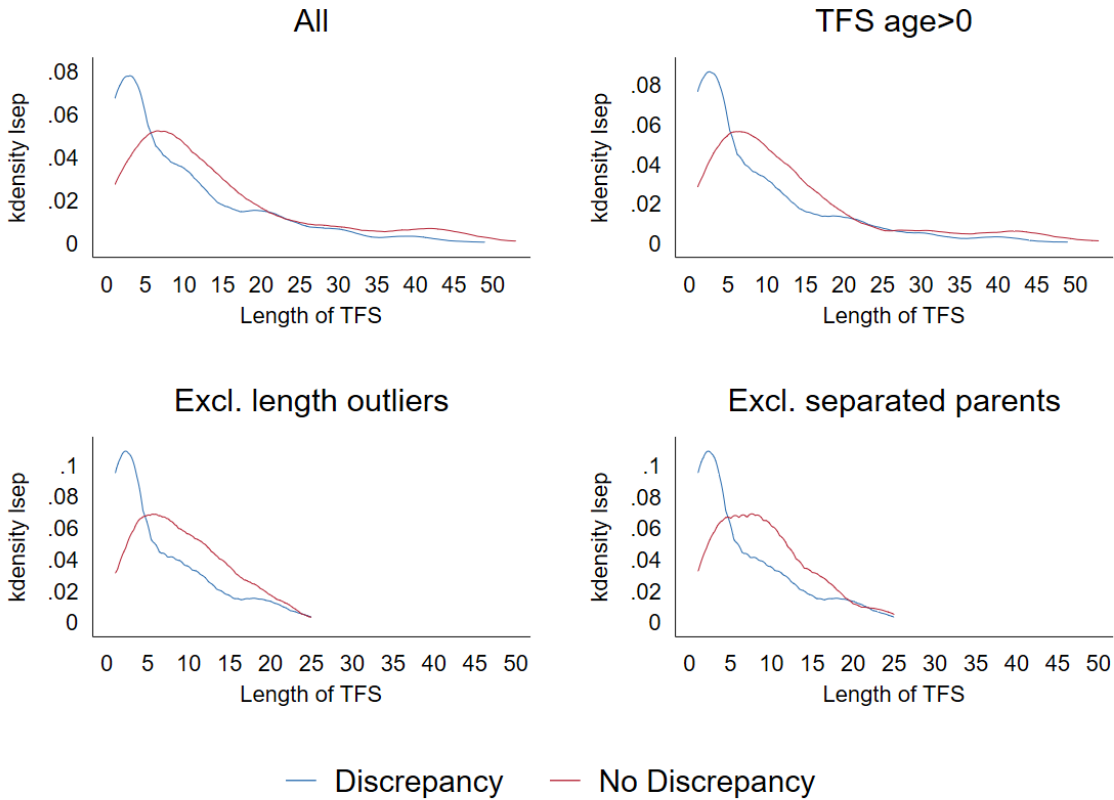


Figure 2 Distribution of length of TFS by discrepancy between information on TFS and on continuous residency with both parents until age 16, by sample

As for the distribution of length of TFS (ref. Figure 2), respondents for whom the information on TFS coincides with self-reported co-residency with both biological parents until age 16 are markedly more likely to have experienced longer periods of separation. The difference in distribution of length of separation between the two groups is similar across all the sample specifications.

Finally, in Figure 3 is presented the distribution of age at arrival by discrepancy and by sample definition. In this case too, the difference in distribution between the two groups does not change significantly between sample specifications: in all cases, immigrants for whom the information on TFS based on years of first migration is in line with the reported co-residency

with both parents until age 16 are more likely to have migrated to the UK between ages 10 and 16, compared to respondents for which the two sources of information are in contradiction.

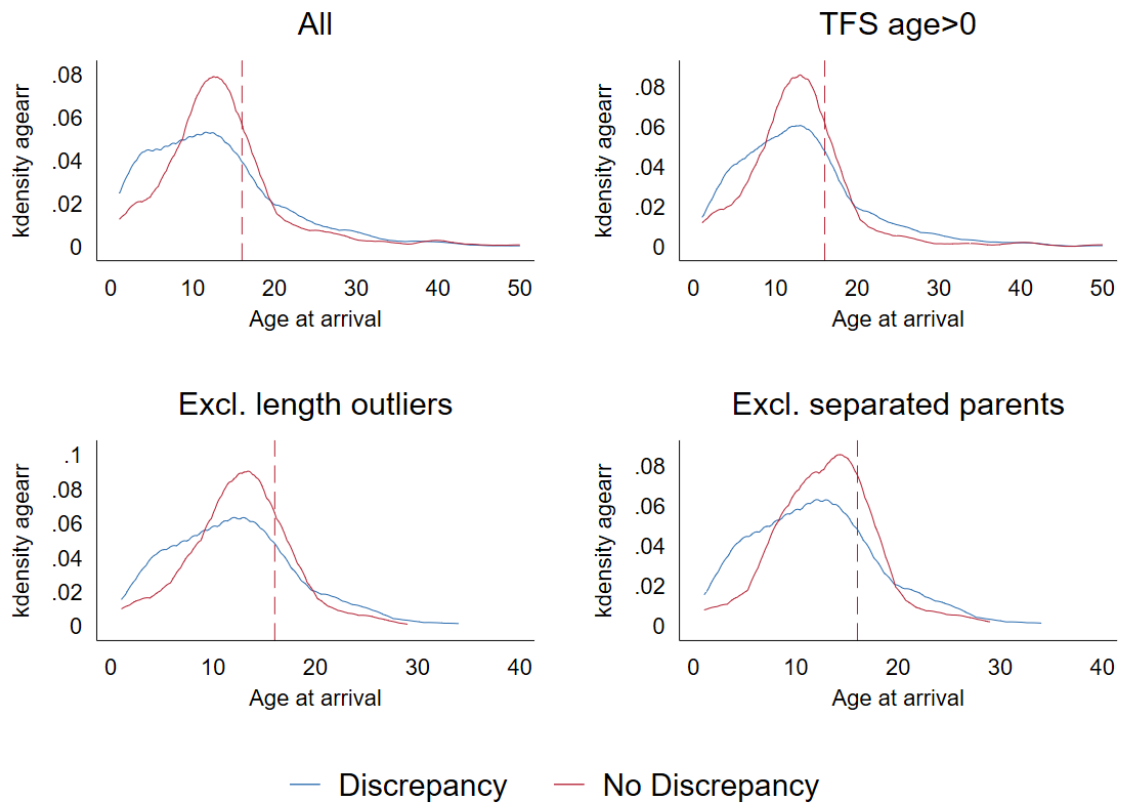


Figure 3 Distribution of age at arrival by discrepancy between information on TFS and on continuous residency with both parents until age 16, by sample

To conclude, most individuals who migrated in a different year compared to their parents still report having lives continuously with their parents throughout their childhood. This is especially true if we only consider individuals whose parents were continuously married/together. Individuals who experienced short periods of TFS (5 years and less) and who migrated between ages 10 and 16 are especially likely to not report their TFS as an interruption of their co-residence with their parents.

Overall this does not necessarily mean that individuals tend to not perceive TFS as separation as such, but rather they might think that the question is not directed at their specific case. Therefore, survey designers might consider twitching the formulation of the questions on continuous co-residence with both parents to more explicitly include temporary interruptions due to migration and labour mobility, and to include a category for living together apart (LAT) arrangements in the follow-up questions. This would not only be beneficial for research on international migrations and transnationalism, but also on the general population, as LAT

arrangements are increasingly common, especially among younger couples with instable careers.

CHAPTER THREE

Parenting from abroad: mental health of immigrant parents with children left behind.

Abstract

Restrictive immigration policies, financial concerns and/or cultural preferences often lead families to separate across borders in the migration process. This transnational family separation, which often lasts years, can potentially have long lasting negative consequences on migrant parents' mental health. Indeed, qualitative research has documented that transnational parents often report feelings of guilt, sadness and loneliness due to the separation, and that financial or legal precarity can exacerbate these feelings. On the other hand, quantitative research on this topic is scarce, mostly based on relatively small samples and on cases studies of single origin groups in single destination countries, has measured transnational parents' mental health disadvantage using less than ideal control groups, and has not investigated potential long-lasting consequences of separation after reunification. In this article, I advance this literature using data from the French survey *Trajectoires et Origines 2* to investigate differences in mental health between transnational immigrant parents, parents who migrated with their children, and immigrant parents who reunited with their children after a period of separation. I additionally look at heterogeneities by gender, age of the transnationally separated children, legal status, and employment status. I find that transnational fathers and mothers have significantly worse mental health than parents who migrated with their children, especially when the separation involves minor children. The mental health of formerly transnational parents does not differ significantly from that of parents who migrated with their children, suggesting that reunification might be sufficient for recovery.

Keywords

Transnational families, mental health, migrant parents, left behind children

1. Introduction

Many immigrants are not single and unattached when they decide to migrate. In fact, an important driver of migration is the desire to provide better living conditions for one's children and extended family, in terms of housing conditions, quality of education, and access to healthcare (Parreñas, 2005). In some cases, whole families plan to migrate and settle in the destination country; in others, the plan is for one family member to spend some time abroad to save money and send remittances, and then reunify in the origin country (González-Ferrer et al., 2012; Zentgraf & Chinchilla, 2012). In either case, legal barriers to family migration, costs-benefits considerations and/or cultural preferences often lead to families to spend some time – in some cases, years – separated across borders (Zentgraf & Chinchilla, 2012). For migrant parents, this transnational family separation (henceforth, TFS) can mean deviating from the culturally assigned roles as partners and as parents (Parreñas, 2005). Especially for women, whose role as mothers is often traditionally connected to caring and nurturing, this can lead to psychological distress due to role strain and to feelings of guilt (Mazzucato et al., 2015), which adds to, and perhaps reinforces, other stressors characterising the migration experience, such as ethnic and racial discrimination (Nandi et al., 2020; Wallace et al., 2016), underemployment (Zwysen & Demireva, 2018) and exploitative working conditions (Dávalos, 2020).

Qualitative and quantitative studies have often reported psychological distress in immigrants experiencing transnational family separation from their children (Dávalos, 2020; Haagsman et al., 2015; Poeze, 2019). Qualitative studies have often reported emotional strain for both immigrant men (Dávalos, 2020; Poeze, 2019) and women (Parreñas, 2005) with children left behind, due to feelings of guilt for the separation or to sadness for the perceived emotional distance from their children. Quantitative studies have often found support for the association between TFS and worse mental health for migrant parents transnationally separated from (some of) their children, although some found this to be the case only for women (Arenas et al., 2021; Haagsman et al., 2015).

While transnational parenthood is an established topic in qualitative research, quantitative social research on it, especially on its association with mental health, is still scarce and has significant limitations. First, it consists mostly of case studies of one to two origin groups in one to two countries of destination (Arenas et al., 2021; Dito et al., 2017; Haagsman et al., 2015; Mazzucato et al., 2017; White et al., 2019). Second, previous quantitative research has typically compared transnational parents either to other immigrants independently of their parenthood status (Afulani et al., 2016; Arenas et al., 2021; Pannetier et al., 2017), or to

immigrant parents who live in the same country and/or household as all of their children (Dito et al., 2017; Haagsman et al., 2015; Mazzucato et al., 2017; Tosi & Impicciatore, 2022; White et al., 2019). I argue that a better control group for transnational immigrant parents are immigrant parents who migrated at the same time as their children, and that individuals who transitioned to parenthood only after migration and individuals who were at some point transnationally separated from their children but achieved reunification in the destination country should be treated as separate groups. Third, while a few studies investigated gender differences in the association between TFS and (mental) health, only one has so far looked into differences by economic conditions or legal status (Haagsman et al., 2015), and none at the latter by gender. Lastly, previous studies have focused exclusively on TFS from minor children, whereas separation from adult children might also be a source of emotional distress, although partly for different reasons.

In this article, I tackle these limitations using data from the French survey *Trajectoires et Origines 2* (TeO2), collected between 2019 and 2020. This dataset contains a large sample of first-generation immigrants and uniquely rich information on immigrants' and their families' migration and life trajectories. I contribute to previous literature by: first, not focusing on specific origin groups but rather using a representative sample of immigrants to a destination country, France; second, by distinguishing immigrant non-transnational parents into individuals who migrated with their children, individuals who experienced TFS in the past, and individuals who did not have children before migration. This allows not only to assess potential long-term consequences of TFS on mental health after reunification, but also to estimate the bias arising from using all immigrant non-transnational parents as a control group for transnational parents. Third, I use inputs from qualitative research on transnational parenthood to hypothesise and test heterogeneities in the association between experience of TFS and mental health by gender, employment and legal status, and their combination. Finally, I consider TFS from both minor and adult children.

2. Background

2.1. Transnational parenting and mental health: insights from qualitative research

There are several pathways through which migration can lead to TFS. In some cases, the migration of one parent is only planned to be temporary, and aimed at accumulating savings to ensure better living standards for the whole family (Parreñas, 2005). In these cases, leaving children behind is generally more financially efficient, as childcare can be provided by the

extended family and as countries of origin often have lower costs of living than destination ones (Zentgraf & Chinchilla, 2012). Leaving children behind can also be an outcome of preferences towards children being brought up in their origin culture, rather than avoiding being ‘spoiled’ by foreign values (González-Ferrer et al., 2012). Finally, an important element is that immigration policies generally do not allow short-term visa holders to move with their partner and children, as discussed in section 3.

In other cases, the entire (nuclear) family plans to move to the destination country but decides to do so stepwise. The reasons leading to stepwise migration are similar as in the previous case: the costs and risks of migration can be too high for the whole family to face them at the same time; immigration policies generally impose minimum residence length, income and housing criteria for family reunification; and parents can prefer their children to be exposed to their origin culture in their childhood, and only migrate in teenage years or as adults.

Whatever the path that led to it, TFS is generally found to take a toll on the mental health of transnational parents. While this could be partly an intrinsic consequence of living at a long distance, an important element in the equation are cultural parenting norms (Mazzucato et al., 2017; Parreñas, 2005; White et al., 2019). Especially in countries where nuclear family forms are prevalent, transnational parenthood can be a strong deviation from culturally mandated roles (Parreñas, 2005). This is especially the case for transnational motherhood, as in many cultures mothers are expected to be primarily carers for their children and extended family (Chikwira & Madziva, 2023; Parreñas, 2005). This leads to stigma towards transnational mothers for “abandoning” their children, and to strong pressure to provide emotional support and care from a distance. The latter task has been made progressively easier by the developments in ICTs, but it can nevertheless be a burden especially for working transnational mothers, as it adds to often strenuous working conditions (Parreñas, 2005). In cultures where extended family forms and child fostering are common, such as in most Western African countries, transnational parents do not incur into stigma for separating from their children (González-Ferrer et al., 2012), and the separation can be happy, as long as children are properly taken care of by surrogate carers (Poeze & Mazzucato, 2013).

Even in cultures with strong nuclear family norms, transnational fathers tend to have lower pressure, compared to transnational mothers, to maintain a strong emotional bond with their children through frequent communication (Dávalos, 2020; Parreñas, 2005). Nevertheless, they often report sadness over the lack of emotional bond with their left-behind children, and distress over the resulting inability to discipline them (Poeze, 2019). In addition, transnational fathers

face strong pressure to provide a consistent or increasing flow of remittances and gifts to their children and left-behind family members. Therefore, they often have time-intensive jobs and sacrifice their own living standards to provide for their family back home (Dávalos, 2020; Poeze, 2019), and sometimes withdraw from communications with left behind children, partners and extended family members during periods of unemployment, to avoid being blamed or accused for the interruption of remittances (Poeze, 2019).

Left behind children themselves can sometimes actively emotionally hurt their parents, for example by blaming them when they are not appropriately cared for (Bernhard et al., 2009; Horton, 2009; Poeze & Mazzucato, 2013), acting uninterested when the parents visit home (Dreby, 2007), telling them that they don't love them (Horton, 2009), or refusing to migrate to reunite with their parents (Dreby, 2007). While small children are more likely to avoid communicating with their parents or to act uninterested during their visits, teenagers tend to act out, reject parental attempts at disciplining them, and to perform poorly in school as a form of punishment towards their parents (Dreby, 2007).

Legal status may also affect how the experience of transnational parenthood affects mental health. Having an instable legal status can be stressful in general, but this may be particularly the case for transnational parents, whose ability to provide for, visit, and reunite with their family depends on it (see e.g. (Poeze, 2019). More in general, immigrants who are subject to more restrictive criteria for family reunification might feel denied of agency and unjustly treated.

2.2. Quantitative research in transnational parenthood and mental health: findings and limitations

Largely due to the dearth of large-N data on immigrants with sufficiently rich information on transnational ties and mental health, quantitative research on transnational parenthood and mental health has to date been significantly scarcer and more limited in scope than the corresponding qualitative literature. Quantitative findings have overall supported those from qualitative studies: transnational parents tend to present higher levels of emotional distress compared to other immigrants in general (Arenas et al., 2021) and to non-transnational immigrant parents specifically (Haagsman et al., 2015; Mazzucato et al., 2017; White et al., 2019), and one study has found that transnational parents' happiness is more affected by financial stress than that of non-transnational immigrant parents (Haagsman et al., 2015).

However, no statistically significant association between mental health and transnational parenthood was found, net of control variables, among Sub-Saharan Africans living in the Paris

metropolitan area (Pannetier et al., 2017), or among Nigerian parents living in the Netherlands (Haagsman et al., 2015), although in the second case transnational parents were found to have lower *happiness and life satisfaction* than non-transnational immigrant parents. In addition, quantitative studies that have investigated differences by gender have found the association between transnational separation and mental health to be only significant for women (Arenas et al., 2021; Haagsman et al., 2015), whereas qualitative studies have often highlighted that transnational fathers too report feelings of guilt and sadness over the separation and emotional distance from their left-behind children (Dávalos, 2020; Poeze, 2019).

Because of its novelty and reliance on relatively small-N studies, quantitative literature on transnational parenthood and mental health has some important limitations. First, it is almost exclusively composed of case studies of single origins in single destinations, such as Mexicans in the US (Arenas et al., 2021), Ghanaians, Nigerians and/or Angolans in Ireland (White et al., 2019), the Netherlands (Dito et al., 2017; Haagsman et al., 2015; Mazzucato et al., 2017; White et al., 2019) and Portugal (Mazzucato et al., 2017), or Sub-Saharan Africans in Paris (Pannetier et al., 2017). The only study using a representative sample of the whole immigrant population in a country of destination (Tosi & Impicciatore, 2022) operationalises subjective wellbeing with a one-item measure of subjective overall health, which captures physical as well as mental health. In addition, this study limits the analyses to intact couples with children left behind, thus excluding individuals who are transnationally separated from partners as well as from children and single parents.

A second limitation is that previous studies have used as control group for transnational parents either all other immigrants (Arenas et al., 2021; Pannetier et al., 2017) or non-transnational immigrant parents (Dito et al., 2017; Haagsman et al., 2015; Mazzucato et al., 2017; Tosi & Impicciatore, 2022; White et al., 2019). Both options are problematic, as they cluster individuals with significantly different migration trajectories and that are therefore likely to differ in terms of, among other characteristics, pre-migration life conditions, reason to migrate, and constraints during and after migration. I argue that the best control group for transnational parents are *individuals who migrated with their children*, as they can be thought to represent what would be transnational parents' mental health if they had chosen, or had the means and/or legal options to choose, to migrate as a family unit, rather than to separate from their children.

Individuals who reunited with their children after TFS should be treated, whenever possible, as a separate group: differences in mental health between them, transnational parents, and individuals who migrated with their children are theoretically relevant, as they can suggest

whether reunification is sufficient to compensate for the negative effect of TFS on mental health, or if TFS can have a long lasting scarring effect on mental health. Qualitative literature on reunification of transnational families has pointed out that this can be a stressful process for both formerly left-behind children (Suárez-Orozco et al., 2002, 2011) and formerly transnational mothers (Bernhard et al., 2009), due to the emotional distance developed during the separation and the difficulties creating a new bond. Quantitative literature has indeed found that formerly left behind children tend to have worse mental health than never separated children (Suárez-Orozco et al., 2002, 2011), in some cases even long after reunification in the destination country (Chapter 2 in this dissertation). Quantitative research has not found a statistically significant association between reunification with a child and mental health net of confounding factors (Ornelas & Perreira, 2011) when comparing reunified immigrant parents to immigrant parents in general, not distinguishing however between transnational and non-transnational parents in the control group.

Individuals who only had children after migration and in the destination country are likely to be more similar to *childless immigrants* in terms of pre-migration life conditions and selection into migration, than to immigrants who have children born abroad. However, the former share some experiences and difficulties with the other non-transnational immigrant parents, and they cannot be distinguished from other non-transnational immigrant parents in surveys with no detailed information on children's year of birth and/or on parents' year of migration. Thus, in this article I treat them as a separate group, in order to assess whether clustering them with other non-transnational parents might lead to biased estimations of the association between TFS and mental health, and if so in which direction.

Finally, most previous studies have only considered transnational separation from children younger than 18 (Pannetier et al., 2017) or 21 (Haagsman et al., 2015), and others do not specify the age of left-behind children (Arenas et al., 2021; Mazzucato et al., 2017; Tosi & Impicciatore, 2022; White et al., 2019). Separation from young children is likely to be more emotionally burdensome because of the importance (culturally) attributed to early childhood for attachment and bonding, because small children require more physical care and nurturing, and because transnational communications are more difficult with them. However, transnational separation from adult children may also be associated with poor mental health: parents separated from adult children often have experienced longer TFS, especially if they migrated when the child was still a minor, cannot access to family reunification through the official channels, might be

at risk of loneliness, and – when applicable – might feel guilty for not fulfilling their roles as grandparents.

2.3. Definitions and measures of mental health in TFS research

There are several ways to define and operationalise mental health (see (OECD, 2023) for a full review). At one extreme, it can be defined as the absence of mental illnesses, measured according to diagnostic criteria. Typically, operationalisations of mental health relying on diagnostic criteria focus on major depression or – less frequently – generalised anxiety, which are the most common mental disorders. However, the absence of diagnosable severe mental illnesses is not a sufficient condition for good mental health: symptoms of psychological distress below diagnostic thresholds can still significantly impact an individual's quality of life and are a risk factor for future onset of severe conditions. Therefore, many studies use continuous measures of mental health, often computed from multiple-item instruments tapping into different dimensions of positive and negative mental health such as mood, social functioning, vitality, worrying, and self-confidence.

The symptoms of emotional distress commonly reported in qualitative studies on transnational parents include feelings of sadness, loss, and guilt, and behaviours such as avoiding communications with left-behind family members. These symptoms are in line – depending on intensity and frequency – with diagnostic criteria for depression. Most quantitative studies have measured mental health using continuous measures of emotional wellbeing (Arenas et al., 2021; Haagsman et al., 2015; Mazzucato et al., 2017; White et al., 2019), in some cases in combination with measures of happiness, life satisfaction and subjective overall health (Haagsman et al., 2015; Mazzucato et al., 2017; White et al., 2019) to tap into the other dimensions of subjective wellbeing. Other studies have used a dichotomous measure of mild to severe symptoms of depression and anxiety based on diagnostic criteria (Pannetier et al., 2017), or a one-item measure of self-rated overall health, which tends to capture mental, emotional and physical health (Tosi & Impicciatore, 2022).

I believe that the conceptualisation of mental health as a continuum from diagnosable mental disorders to positive mental health is a better fit to research in social sciences in general and on the topic of TFS specifically. However, the information available in TeO2 data does not allow for a continuous measure of mental health. Therefore, in this article I use a dichotomous measure of mental health indicating experience in the last 12 of at least one symptom of major depression according to diagnostic criteria. The measure is described in detail in section 4.2.1.

3. Family immigration and reunification in France

As mentioned in section 2.1, one important factor affecting experience and length of TFS are destination countries' policies concerning family migration and reunification. Since the 1990s, family migration and reunification policies in France have followed an increasingly restrictive trend (Eremenko & González-Ferrer, 2018). However, different categories of immigrants are subject to different rules, according to their nationality, legal status, and skill level. The current legal framework for family migration and reunification in France¹⁰ is presented in the next paragraphs.

At the one end of the spectrum are *French* (incl. naturalised) and *European Union citizens*. Their family members (defined to include registered partners, children under 21 or other dependent children of the migrant/citizen or of the partner, and parents of the migrant/citizen or of the partner) can freely settle in France, and are only required to obtain an “accompanying family member” residence permit (a simplified and free of charge procedure) if they are not themselves EU citizens. At the other end are *undocumented immigrants* and asylum applicants waiting for a decision, who have no right to reunification at all. *Refugees, beneficiaries of a Humanitarian Protection status and stateless individuals* can ask for reunification for children younger than 19 (for refugees and humanitarian protection status, at the time of the asylum application) and for spouses older than 18, only if the relationship predates the asylum request. *Other immigrants* – mainly those with a residence permit for economic, study, or family reasons – can apply for family reunification if they have been legally residing in France for at least 18 months (12 for Algerians) and have a valid residence permit for at least another year. They also must fulfil a minimum income requirement and have “appropriate” housing. Family members eligible for reunification are legal spouses and children aged up to 18 – if these children are from a previous union of the immigrant or of their spouse, the other parent must be deceased or deprived of parental rights. Only one spouse in a polygamous marriage can obtain family reunification. Finally, spouses and minor children of *special visa holders* have access to a simplified procedure to obtain the status of accompanying family members. Special visa holders are typically highly educated individuals, entrepreneurs, or ICT workers.

¹⁰ The information reported in this section can be retrieved at this link: <https://www.service-public.fr/particuliers/vosdroits/N11165> (visited on 05/04/2023)

Given this framework, most third-country nationals migrating to France are bound by law to be transnationally separated from their nuclear family members for at least some months¹¹, and in most cases a year, before being able to fill an application for family reunification. The only individuals for whom this requirement does not apply are individuals migrating for family reunification – who are about 30% of new third-country national immigrants every year (Ministère de l’Intérieur, 2020) – and for the relatively small group of special visa holders. In addition, literature has documented that the administrative procedures to obtain family reunification visas can cause significant delays and sometimes lead to rejection, due to backlogs and discrimination by street-level bureaucrats (Descamps & Beauchemin, 2022). Indeed, reunification in many cases occurs outside of the standard legal procedure, with (adult) children migrating to France on independent visas as students or workers, or as undocumented migrants (Descamps & Beauchemin, 2022).

4. Data, Variables, and methods

4.1. Data and sample selection

I use data from *Trajectoires and Origines 2* (Beauchemin et al., 2023). This is a cross-sectional survey conducted between 2019 and 2020 in France specifically designed to study immigrants’ and their descendants’ outcomes in a variety of life domains. Interviews were conducted in person and at the respondents’ home, and cards with translations of complex concepts from the questionnaire were provided in several languages. For respondents with insufficient French language proficiency, interviewers were instructed to resort to third party translators (family members, neighbours, friends), or to schedule a catch-up survey in respondent’s native language. The data contain retrospective information on the full migration trajectory of respondents, and information on date and place of birth, year of migration to France and current country of residence of each child born to respondents.

The analytical sample includes individuals older than 18, born abroad, who are parents to at least one child, who were 18 years old or older at their last arrival in France, and with no missing or inconsistent information on mental health or in the variables used to compute the experience of TFS.

¹¹ This is the case for refugees, as they can only apply for reunification after their asylum application has been granted.

4.2. Variables

4.2.1. Mental health

The dependent variable is *recent experience of depressive symptoms*. The TeO2 questionnaire includes one section of the French version of the Mini International Neuropsychiatric Interview (Lecrubier et al., 1997), aimed at diagnosing episodes of major depression. The section consists of two filter questions, asking whether the respondent has felt for most of the day, practically every day, for a period of at least two weeks over the last 12 months: “especially sad, low or depressed” or that they had “lost interest in everything, or no longer felt pleasure in things that [they] normally enjoy”. Respondents who answered yes to at least one of the filter questions were asked seven follow-up yes/no questions. If respondents were hesitant, embarrassed or if a third person was present during the interview, interviewers were instructed to show a card instead of asking the question aloud. Respondents who gave positive answers to at least 5 between the filter and follow-up questions (about 12% of the analytic sample, 8.5% of men and 14.3% of women) qualify for the diagnostic criteria of major depression.

As discussed in section 2.3, in this article I adopt a definition of mental health which does not exclusively distinguish between people who do or do not qualify for the diagnostic criteria of severe mental illness, but rather envisions mental health as a continuum from positive health to severe illness. This is in line with previous social research on TFS, which focuses on differences in emotional wellbeing and happiness by experience of family migration or transnational separation, rather than in risk of mental illnesses. However, creating a continuous variable is not possible from the information in the original dataset. This is because the five follow-up questions, which include some symptoms are in line with the complaints reported by qualitative studies on transnational parents (such as feelings of guilt or worthlessness, troubles sleeping, or difficulties in the relations with family or other people) were not asked to individuals who did not experience either of the two – more severe – symptoms described in the filter questions. As a consequence, the “true” number of experienced symptoms is unknown for about 75% of the sample. As a compromise, I compute a dichotomous variable with values 0 indicating a negative answer to both filter questions, and values 1 a positive answer to either of the two.

4.2.2. Experience of TFS

The main independent variable is *experience of TFS*, with four categories: migrated together, current TFS (referred in the text as “transnational parents”), only past TFS (“formerly transnational parents”), no child born abroad (“post-migration parents”). I compute this in two main steps. In the first step, I code each child of each respondent (R) as migrated together,

current TFS, past TFS, or born and lived in France. In general, children are coded as *migrated together* if they migrated in the same year at the respondent, as *current TFS* if they lived abroad at the time of the survey, as *past TFS* if they migrated to France in a different year than the respondent, and as *born and living in France* if they were born in France and living there at the time of the interview. However, the coding is more complex for children of respondents who migrated to France more than once and for children born and migrated in the same year. The coding process to assign children into the four categories is represented in Figure A1 in the Appendix.

The variable of experience of TFS at the respondent level is coded in the second step. Respondents are coded in the *current TFS* category if they have at least one child currently living abroad; in the *only past TFS* category if they have no child living abroad but experienced TFS from at least one child in the past; in the *migrated together* category if they have no child coded as current or past TFS and at least a child coded as migrated together; finally, parents whose all children were born in France and lived there at the time of the interview are coded as having *no child born abroad*.

Two alternative versions of this variable are *experience of TFS from children younger than 16* and *experience of TFS from children aged 16 or older*. The categories of these variables are: migrated together with all children younger than 16¹² (aged 16 or older); current TFS from at least a child younger than 16 (aged 16 or older); only past TFS from children younger than 16 (aged 16 or older); No child younger than 16 (aged 16 or older) born abroad; No child younger than 16 (aged 16 or older).

4.2.3. Control variables

The control variables are *sex*, *number of respondents' cohabiting children*, *partnership status* (cohabiting couple, living apart together, single), *age* (linear), *number of years since last arrival to France* (linear), *possess of the French nationality*. *Highest educational attainment* is coded as low (primary or secondary), high (higher than secondary), or no diploma or no answer. *Subjective social status in the country of origin* reports respondents' assessment of their pre-migration social status in the country of origin, on a scale ranging from 0 (Bottom of the social scale) to 10 (top of the social scale). Missing answers and refusals (N=502) are coded 5. *Region*

¹² The aim is to distinguish young children who qualify for family reunification and whose wellbeing is strongly dependent on the quality of care received by the adults responsible for them, from young adults who are less likely to qualify for family reunification (because of delays in the procedure or due to being above the age limit) and who are less dependent on adults for their (material) wellbeing. I chose age 16 as a cut-off as this age approximately coincides in many countries with the end of compulsory education and with the minimum working age.

of origin is coded from country of birth and includes categories Northern Africa, EU and West (incl. EU and EEA countries, UK, Israel, US, Canada and Australia), Sub Saharan Africa, Middle East and Balkans (excl. EU countries), Asia (excl. Middle East and Former Soviet Union countries), Former Soviet Union (excl. EU countries), Latin America and Caribbean.

Lastly, I use three variables to explore heterogeneities in the association between TFS and mental health: respondent's *sex*, employment status and current legal status. *Employment status* distinguishes three categories: employed (incl. self-employed), unemployed, or inactive. The latter category includes students and apprentices (31 women and 15 men), retirees (2 men and 4 women), homemakers (18 men and 850 women), and inactive because of invalidity or other reasons (107 men, 138 women). *Current legal status* distinguishes short-term residence permit, long term residence permit, no need for a residence permit, and other/NA.

Summary statistics for all variables by experience of TFS are reported in Table A in the Appendix.

4.3. Methods

I use linear probability models for the multivariate analyses. The analyses are structured as follows. First, I regress depression on experience of TFS (from children of any age; from children younger than 16; and from children aged 16 or older), adding the control variables stepwise. Second, I test interactions between experience of TFS (from children of any age; from children younger than 16; and from children aged 16 or older) and gender and current legal status; finally, I test a three-way interaction between experience of TFS (only from children of any age), employment status and gender. All multivariate analyses are weighted using the provided population weights.

I run three robustness checks. In the first one, I don't consider as currently transnationally separated children older than 15 who were born in or at some point migrated to France, but who were living abroad at the time of the interview; respondents are then assigned to the "experience of TFS" categories based on other children or set to missing. In the second, I additionally drop the cases in which the respondent's last migration to France happened when their youngest child born abroad was older than 18. The differences between the main variable for experience of TFS and the ones used in the robustness checks are reported in Table A in the Appendix. In the third robustness check, I exclude from all the analyses individuals born abroad but who had French nationality at birth (N=68). There is no substantial difference between the results presented in the text and the robustness checks (results not shown, available upon request).

5. Results

5.1. Past and current experience of TFS among immigrants in France: an overview

Overall, transnational immigrant parents are a relatively small group of all immigrant parents in the sample, as they represent about 10% of immigrant fathers and 8% of immigrant mothers (refer to Table A2 for frequencies of experiences of TFS by gender). However, when only considering individuals who have children born or living abroad – that is, the population most at risk of TFS due to migration – almost 34% of fathers were transnationally separated from at least one child at the time of the survey, and 23% of the mothers. In addition, 36% of the fathers with children born abroad and 27% of the mothers were transnationally separated from a child in the past and then reunited. In total, half of the mothers who have children born abroad migrated with all their children, and less than one third of the fathers.

These figures vary significantly by region of origin of the parents, as presented in Figure 1. Consistently with expectations, Sub Saharan African immigrants have the highest rates of current TFS: within this group, 66% of immigrant fathers with children born abroad were transnationally separated from at least one child at the time of the interview, and so were 36% of immigrant mothers. Sub Saharan African immigrants are also the only group, together with EU and western immigrants, who are more likely to be currently transnationally separated from a child than to have been formerly separated and then reunited. In all groups but among Asians, men are more likely than women to be transnationally separated from a child.

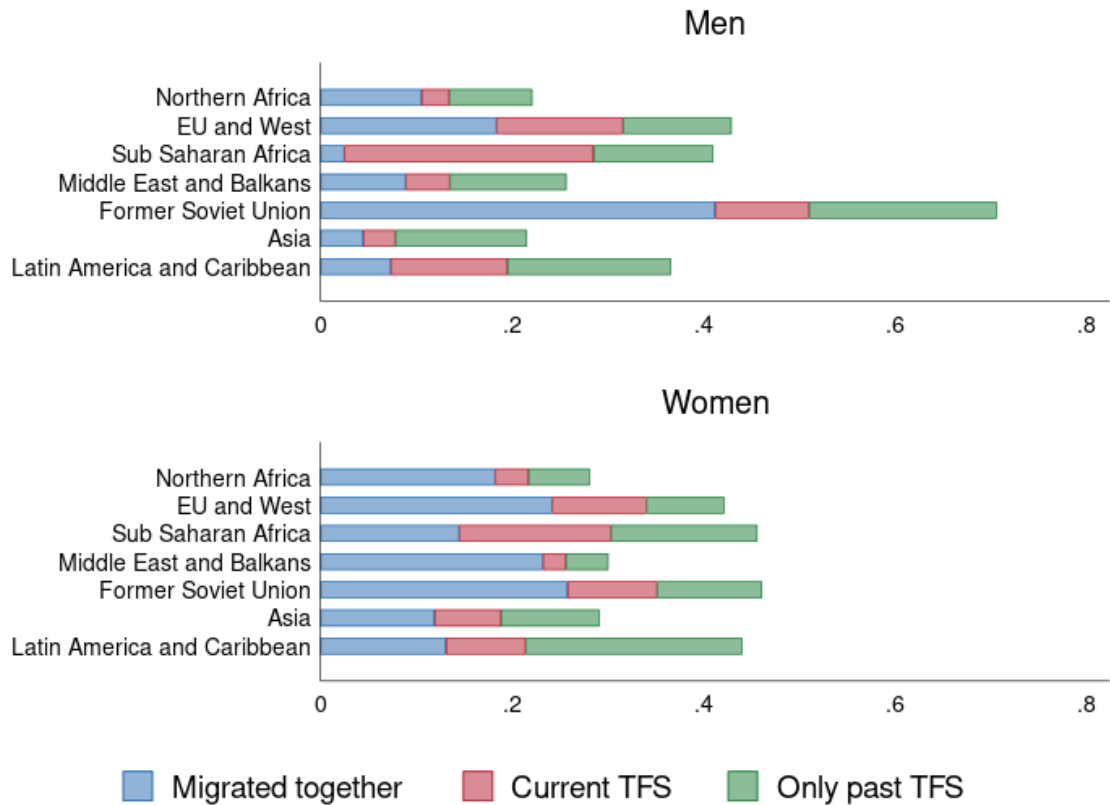


Figure 1. Proportions of immigrant parents who migrated together with all born-abroad children, who are currently transnationally separated from a child, or who reunited with all their formerly transnationally separated children, on the whole sample of immigrant parents, by geographic area of origin and gender.

The distribution of years since last arrival by gender and experience of TFS is represented in Figure 2. Individuals who migrated together with their children and those currently experiencing TFS tend to have spent fewer years in France since their last arrival, compared to the other two groups. Individuals who migrated together with all their born abroad children are on average the most recently arrived group. This is surprising, given that barriers to family migration and reunification have been consistently increasing in France since the 1970s (Descamps & Beauchemin, 2022). Separate analyses (available upon request) indicate that this finding is *not* explained by compositional differences by gender, age at last arrival, level of education, region of origin, type of visa at arrival, type of first residence permit in France, number of children born abroad, nor by repeat migration to France. Less surprisingly, individuals who reunited with their children after transnational separation and those who only had children after migrating to France have on average the longest residence durations in France.

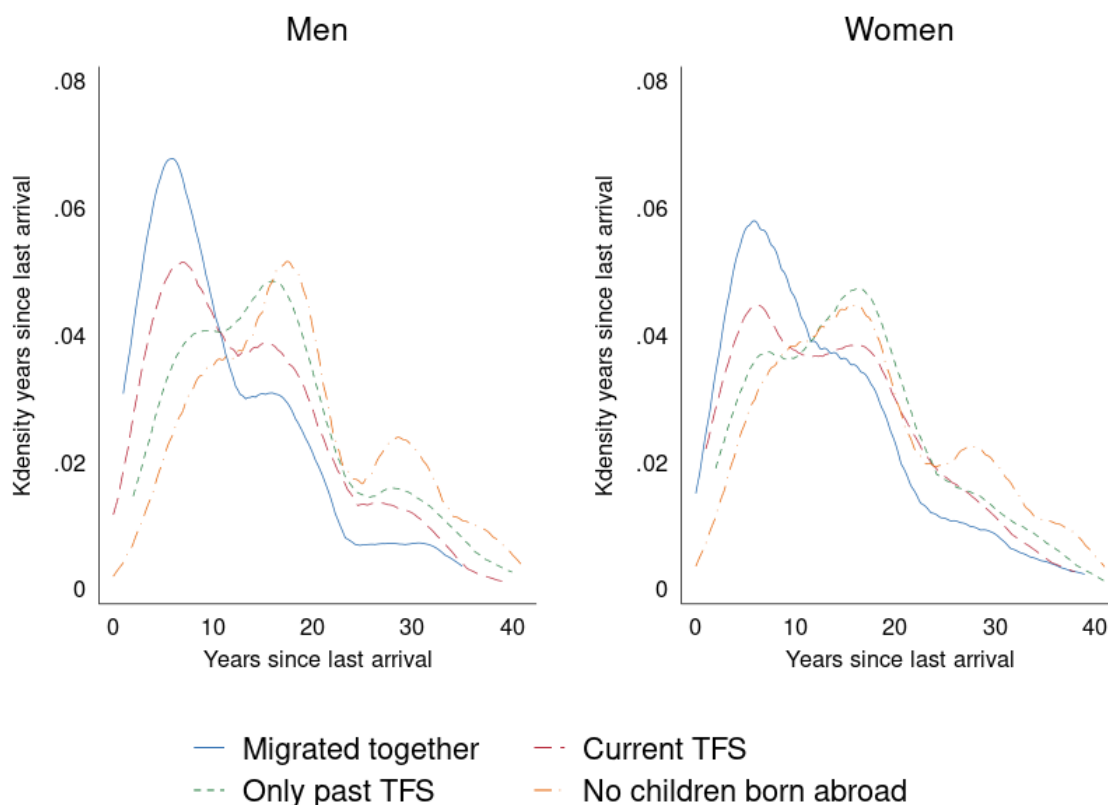


Figure 2 Years since arrival by experience of TFS and gender.

5.2. Experience of TFS and mental health

Coefficients from the linear probability regressions of having experienced depressive symptoms on experience of TFS (from children of any age, children younger than 16 and children aged 16 or older) are reported in Figure 3. I find that transnational immigrant parents are significantly (14 percentage points before controls, and 9 in the fully controlled model) more likely to have experienced depressive symptoms in the last 12 months, compared to individuals who migrated in the same year as all their children born abroad. This is mostly driven by transnational parents with at least a child younger than 16 living abroad. For this group, the chance of having experienced depressive symptoms is 25 percentage points higher, in the model with full controls, than for migrants who migrated together with all their young children. To the contrary, the association between current TFS from a child aged 16 or older is not statistically significant at the 90% threshold after controlling partnership status and number of children in the household.

There are no substantial nor statistically significant differences in chances of having experienced depressive symptoms between individuals who migrated with their children, who reunited with previously left-behind children, or who only have children born in France.

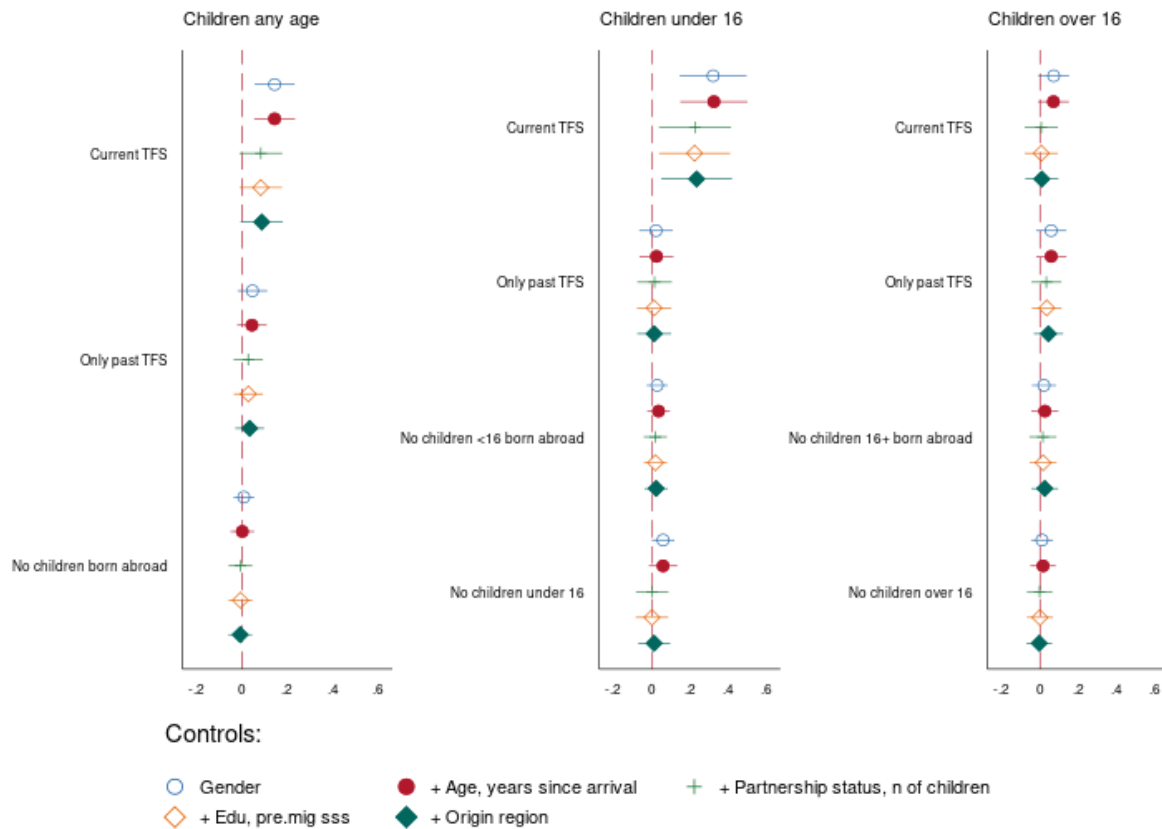


Figure 3 Coefficient plot with 95% confidence intervals from LPMs regressing having experienced depressive symptoms on experience of TFS (ref. cat. Migrated together), with stepwise inclusion of control variables. Full models in Table A4

Results by gender are reported in **Error! Reference source not found. 4**. Contrary to findings from previous quantitative literature, and in line with qualitative research on transnational parenthood, I do not find a statistically significant difference by gender in the association between TFS and experience of depressive symptoms. Instead, I find that the only statistically significant difference in experience of depressive symptoms by experience of TFS is the one between men who are transnationally separated from a child younger than 16 and men who migrated with all their children younger than 16, with the former being more likely to have experienced depressive symptoms than the latter by 22 percentage points. Not only I do not find any statistically significant difference in mental health between women who migrated with their children and those who were transnationally separated from (some of) them at the time of the interview, but also the coefficients are slightly (and not statistically significantly) smaller for women than for men in the models looking at separation from all children and in that for separation from children under 16. Although the association between past TFS and depressive symptoms is not statistically significant in any of the models, former transnational mothers of a child aged 16 or older are predicted to have a chance of experiencing depressive symptoms 8

percentage points higher than women who migrated together with their children now aged 16 or older. I do not find a statistically significant interaction between experience of TFS and current legal status (see columns 4-6 in Table A5).

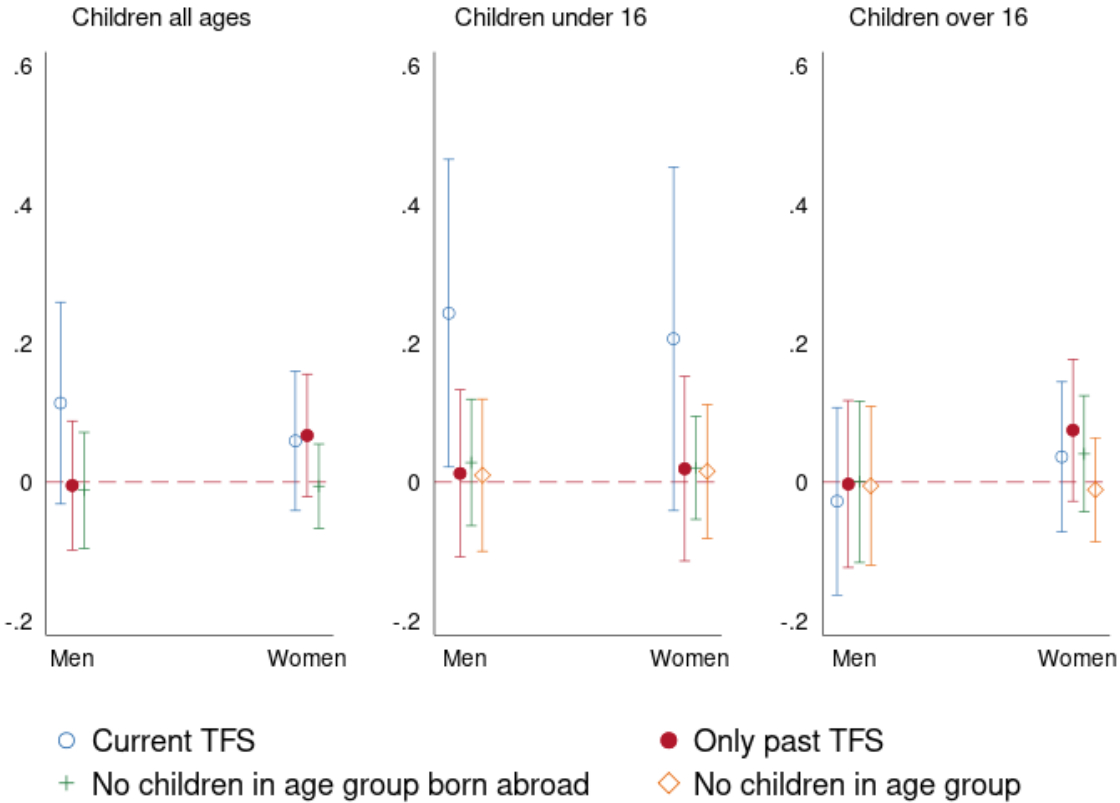


Figure 4 Average marginal effects with 95% confidence intervals of experience of TFS (reference category migrated together) on chance of having experienced depressive symptoms by gender, model with all the controls. Full models in Table A5.

Finally, results from the interaction between experience of TFS and employment status stratified by gender are reported in Figure 5. Because of the small sample sizes (reported in Table A3), I only run this analysis with experience of TFS from children of any age, and I use immigrants who only had children after migrating to France as the control group. Because very few men are observed in inactivity, I do not comment results for this group. Among employed individuals, there are no statistically significant differences among any of the four categories of experience of TFS – although the difference between transnational and post-migration parents in the chance of having experienced depressive symptoms is substantially larger among men (13 percentage points) than among women (1 percentage point). Among inactive women, currently and formerly transnational mothers have higher chances of experiencing depressive symptoms compared to post-migration mothers, but not compared to mothers who migrated with their children. Among unemployed women, former transnational mothers are significantly

more likely to have experienced depressive symptoms compared to post-migration mothers and to mothers who migrated with their children. Finally, unemployed transnational fathers are substantially and statistically significantly more likely to have experienced symptoms of depression compared to post-migration fathers, whereas no such difference exists among unemployed women.

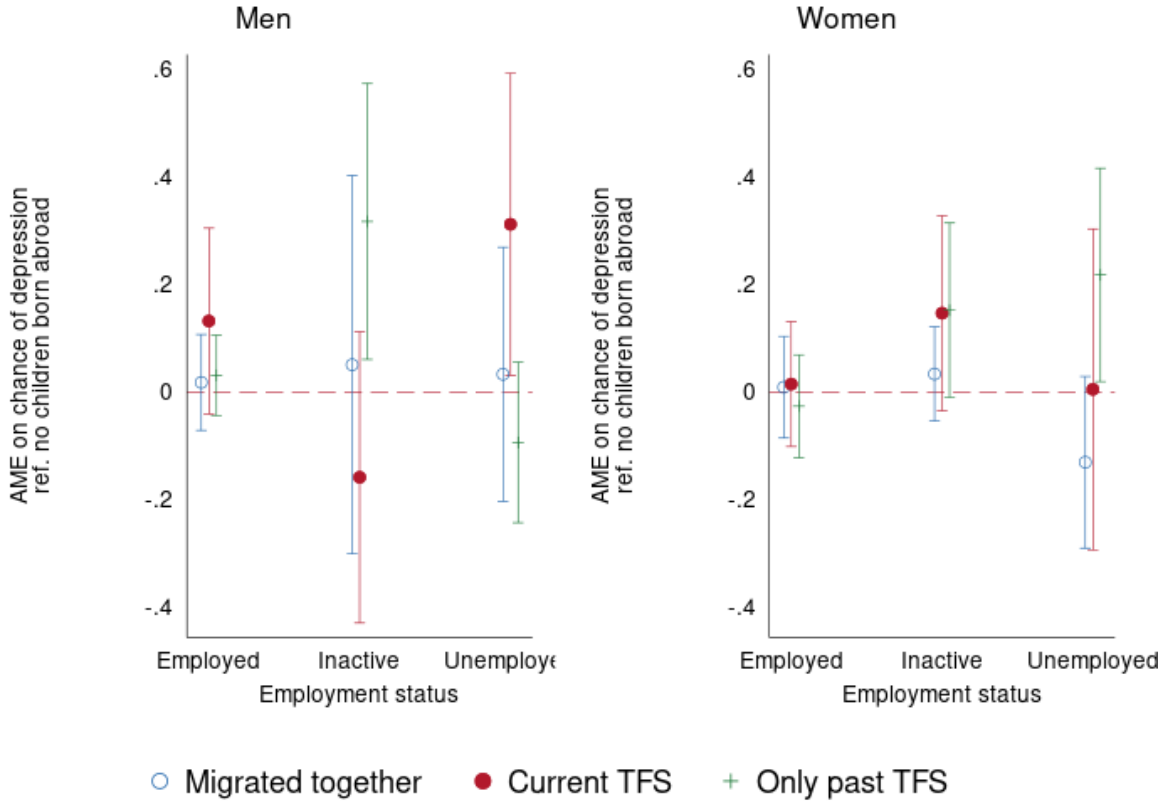


Figure 5 Average marginal effects with 95% confidence intervals of experience of TFS (reference category No child born abroad) on chance of having experienced depressive symptoms, by employment status and gender, model with full controls. Full models in Table A6

6. Discussion and conclusions

In this article, I have investigated the association between current and past transnational separation from children and mental health among immigrant parents living in France. While this topic has been widely studied in qualitative literature, quantitative literature on it is still scarce, and consists mostly of relatively small-N, single-origin in single-destination studies. Consequently, there is no account of the size of the phenomenon among immigrants living in destination countries, and it is not clear how results from specific origin countries or areas can be generalised to the larger immigrant population. In addition, previous studies have not looked into potential scarring effects of past TFS on mental health after reunification, nor into heterogeneities in the association between TFS and mental health by gender (with the

exceptions of (Arenas et al., 2021; Haagsman et al., 2015), economic conditions (with the exception of (Haagsman et al., 2015), or legal status. In this article, I have dealt with these issues using data from *Trajectoires et Origines 2*, a survey conducted between 2019 and 2020 on a large representative sample of the immigrant population living in France.

I have found that at least 20 percent of immigrant parents living in France are or have been transnationally separated from (some of) their children since their first arrival to France, a figure that reaches 58 percent among individuals who have children born abroad. Confirming results from previous quantitative and qualitative literature, I find that immigrant transnational parents have significantly worse mental health than immigrant parents who migrated with their children, especially if the separation concerns at least a child younger than 16 years old. Transnational separation from a child aged 16 or older is also associated with higher risk of having experienced depressive symptoms in the last year, but the association is explained by compositional differences in partnership status and number of children in the household. Previous quantitative literature has often found that only women present worse mental health when transnationally separated from a child (Arenas et al., 2021; Haagsman et al., 2015); to the contrary, I do not find a statistically significant difference in the association between experience of TFS and mental health by gender, and the coefficient is even slightly higher for men. This is consistent with findings from qualitative research, that has often highlighted feelings of sadness and guilt among transnational fathers.

Another hypothesis derived from qualitative research is that transnational fathers' mental health would be more strongly affected by economic stressors than transnational mothers', given the higher expectations for men to fulfil their role as breadwinners. While I find that unemployed transnational fathers have worse mental health compared to unemployed non-transnational fathers and to employed transnational fathers, the latter difference is not statistically significant. However, this part of the analyses relies on small Ns, especially among non-employed men. No statistically significant differences were found in the association between experience of TFS and mental health by current legal status or by past experience of undocumentedness in France, nor did I find any evidence that TFS has a lasting impact of mental health after reunification, except among non-employed immigrant mothers.

An interesting finding is that the association between experience of TFS and experience of depressive symptoms differs significantly, among women, depending on employment status. Among women who are active in the labour market (employed or unemployed), current transnational separation from children is not associated with worse mental health outcomes

compared to never having been transnationally separated from a child. Among inactive women however, both current and past TFS are associated with significantly worse mental health, and past TFS is associated with worse mental health among unemployed immigrant mothers. These findings are hard to make sense of given the available qualitative literature. In particular, the first finding suggests that there are likely to be important differences in the experience of TFS between first-mover women, who are generally active in the labour market, and women who migrated for family reunification purposes, who are more often homemakers. Qualitative literature on mothers in transnational families has focused overwhelmingly on first-movers (Basa et al., 2011; Fresnoza-Flot, 2023; Horton, 2009; Parreñas, 2005) or, more rarely, on left-behind mothers (Graham et al., 2015), but it has mostly neglected the experience of an important group of transnational mothers: those who left their children behind when reuniting with their partners.

While this article contributes to filling some gaps in the literature on transnational parenthood and mental health, it has some important limitations. First, while the data used include detailed information on the respondents' migration trajectories, they do not do so for those of their children. As a result, it is not possible to track periods of transnational separation happened before respondents' last migration to France, or from children born and currently living in France – likely leading to underestimation of past experiences of TFS. Second, the measure of mental health available in TeO2 is designed to identify episodes of major depression in the 12 months preceding the interview. This contrasts with the prevalent approach in studies on immigrants' mental health, including those investigating differences by TFS, which tend to use a definition of mental health as a continuum between positive health and severe illness. In addition, focusing only on depressive symptoms, the measure does not include dimensions of mental illness such as anxiety, feelings of guilt or loneliness, which are commonly reported in qualitative studies on transnational parenthood. Finally, due to the small group sizes, I do not investigate differences in the association between mental health and experiences of TFS between origin groups.

To allow for these gaps to be filled, it is important for surveys focusing on immigrants to collect detailed information on migration trajectories and on children living both in and outside of the destination countries, and on different dimensions of mental health. This would be particularly important to develop this field of research in a comparative direction, which is necessary as immigration policies regimes and migration patterns differ significantly between countries of destination.

References

- Afulani, P. A., Torres, J. M., Sudhinaraset, M., & Asunka, J. (2016). Transnational ties and the health of sub-Saharan African migrants: The moderating role of gender and family separation. *Social Science & Medicine*, *168*, 63–71. <https://doi.org/10.1016/J.SOCSCIMED.2016.09.009>
- Arenas, E., Yahirun, J., Teruel, G., Rubalcava, L., & Gaitán-Rossi, P. (2021). Gender, family separation, and negative emotional well-being among recent Mexican migrants. *Journal of Marriage and Family*, *83*(5), 1401–1419. <https://doi.org/10.1111/jomf.12776>
- Basa, C., Harcourt, W., & Zarro, A. (2011). Remittances and transnational families in Italy and the Philippines: Breaking the global care chain. *Gender and Development*, *19*(1), 11–22. <https://doi.org/10.1080/13552074.2011.554196>
- Beauchemin, C., Ichou, M., & Simon, Patrick. (2023). *Trajectories and Origins 2 (2019–2020): A Survey on Population Diversity in France* (Population-E).
- Bernhard, J. K., Landolt, P., & Goldring, L. (2009). Transnationalizing Families: Canadian Immigration Policy and the Spatial Fragmentation of Care-giving among Latin American Newcomers¹. *International Migration*, *47*(2), 3–31. <https://doi.org/10.1111/j.1468-2435.2008.00479.x>
- Chikwira, L., & Madziva, R. (2023). Transnational Families and Complex Gender Relations: Zimbabwean Migrant Women Living in the United Kingdom. In J. Cienfuegos, R. Brandhorst, & D. Fahy Bryceson (Eds.), *Handbook of Transnational Families Around the World* (pp. 39–52). Springer International Publishing. https://doi.org/10.1007/978-3-031-15278-8_3
- Dávalos, C. (2020). Localizing masculinities in the global care chains: Experiences of migrant men in Spain and Ecuador. *Gender, Place and Culture*, *27*(12), 1703–1722. <https://doi.org/10.1080/0966369X.2020.1715347>
- Descamps, J., & Beauchemin, C. (2022). Reunifying or leaving a child behind: How official and unofficial state selection shape family immigration in France. *Journal of Ethnic and Migration Studies*, *0*(0), 1–26. <https://doi.org/10.1080/1369183X.2022.2114888>
- Dito, B. B., Mazzucato, V., & Schans, D. (2017). The Effects of Transnational Parenting on the Subjective Health and Well-Being of Ghanaian Migrants in the Netherlands. *Population, Space and Place*, *23*(3), e2006. <https://doi.org/10.1002/psp.2006>
- Dreby, J. (2007). Children and Power in Mexican Transnational Families. *Journal of Marriage and Family*, *69*(4), 1050–1064. <https://doi.org/10.1111/j.1741-3737.2007.00430.x>

- Eremenko, T., & González-Ferrer, A. (2018). Transnational families and child migration to France and Spain. The role of family type and immigration policies. *Population, Space and Place*, 24(7), e2163. <https://doi.org/10.1002/psp.2163>
- Fresnoza-Flot, A. (2023). Revisiting Global Care Chains: Power Inequalities in Filipino Transnational Families' Caregiving Arrangements. In J. Cienfuegos, R. Brandhorst, & D. Fahy Bryceson (Eds.), *Handbook of Transnational Families Around the World* (pp. 119–130). Springer International Publishing. https://doi.org/10.1007/978-3-031-15278-8_8
- González-Ferrer, A., Baizán, P., & Beauchemin, C. (2012). Child-Parent Separations among Senegalese Migrants to Europe: Migration Strategies or Cultural Arrangements? *Annals of the American Academy of Political and Social Science*, 643(1), 106–133. <https://doi.org/10.1177/0002716212444846>
- Graham, E., Jordan, L. P., & Yeoh, B. S. A. (2015). Parental migration and the mental health of those who stay behind to care for children in South-East Asia. *Social Science & Medicine*, 132, 225–235. <https://doi.org/10.1016/j.socscimed.2014.10.060>
- Haagsman, K., Mazzucato, V., & Dito, B. B. (2015). Transnational families and the subjective well-being of migrant parents: Angolan and Nigerian parents in the Netherlands. *Ethnic and Racial Studies*, 38(15), 2652–2671. <https://doi.org/10.1080/01419870.2015.1037783>
- Horton, S. (2009). A Mother's Heart is Weighed Down with Stones: A Phenomenological Approach to the Experience of Transnational Motherhood. *Culture, Medicine, and Psychiatry*, 33(1), 21–40. <https://doi.org/10.1007/s11013-008-9117-z>
- Lecrubier, Y., Sheehan, D., Weiller, E., Amorim, P., Bonora, I., Harnett Sheehan, K., Janavs, J., & Dunbar, G. (1997). The Mini International Neuropsychiatric Interview (MINI). A short diagnostic structured interview: Reliability and validity according to the CIDI. *European Psychiatry*, 12(5), 224–231. [https://doi.org/10.1016/S0924-9338\(97\)83296-8](https://doi.org/10.1016/S0924-9338(97)83296-8)
- Mazzucato, V., Cebotari, V., Veale, A., White, A., Grassi, M., & Vivet, J. (2015). International parental migration and the psychological well-being of children in Ghana, Nigeria, and Angola. *Social Science & Medicine*, 132, 215–224. <https://doi.org/10.1016/J.SOCSCIMED.2014.10.058>
- Mazzucato, V., Dito, B. bushie, Grassi, M., & Vivet, J. (2017). Transnational parenting and the well-being of Angolan migrant parents in Europe. *Global Networks*, 17(1), 89–110. <https://doi.org/10.1111/GLOB.12132>

Ministère de l'Intérieur. (2020). *Les étrangers en France—Rapport au parlement sur les données de l'année 2019* (17; Les Rapports Au Parlement - Article L. 111-10 Du Code de l'entrée et Du Séjour Des Étrangers et Du Droit d'asile (CESEDA)).

Nandi, A., Luthra, R., & Benzeval, M. (2020). When does hate hurt the most? Generational differences in the association between ethnic and racial harassment, ethnic attachment, and mental health. *Ethnic and Racial Studies*, 43(16), 1–21. <https://doi.org/10.1080/01419870.2020.1788107>

OECD. (2023). *Measuring Population Mental Health*. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/social-issues-migration-health/measuring-population-mental-health_5171eef8-en

Ornelas, I. J., & Perreira, K. M. (2011). The role of migration in the development of depressive symptoms among Latino immigrant parents in the USA. *Social Science & Medicine*, 73(8), 1169–1177. <https://doi.org/10.1016/j.socscimed.2011.07.002>

Pannetier, J., Lert, F., Jauffret Roustide, M., & du Loû, A. D. (2017). Mental health of sub-saharan african migrants: The gendered role of migration paths and transnational ties. *SSM - Population Health*, 3, 549–557. <https://doi.org/10.1016/j.ssmph.2017.06.003>

Parreñas, R. S. (2005). *Children of Global Migration: Transnational Families and Gendered Woes*. Stanford University Press.

Poeze, M. (2019). Beyond breadwinning: Ghanaian transnational fathering in the Netherlands. *Journal of Ethnic and Migration Studies*, 45(16), 3065–3084. <https://doi.org/10.1080/1369183X.2018.1547019>

Poeze, M., & Mazzucato, V. (2013). Ghanaian Children in Transnational Families: Understanding the Experiences of Left-Behind Children through Local Parenting Norms. In L. Baldassar & L. Merla (Eds.), *Transnational Families, Migration and the Circulation of Care* (p. 21). Routledge. <https://doi.org/10.4324/9780203077535>

Suárez-Orozco, C., Kim, H. Y., & Bang, H. J. (2011). I Felt Like My Heart Was Staying Behind: Psychological Implications of Family Separations & Reunifications for Immigrant Youth. *Journal of Adolescent Research*, 26(2), 222–257. <https://doi.org/10.1177/0743558410376830>

- Suárez-Orozco, C., Todorova, I. L. G., & Louie, J. (2002). Making up for lost time: The experience of separation and reunification among immigrant families. *Family Process, 41*(4), 625–643. <https://doi.org/10.1111/j.1545-5300.2002.00625.x>
- Tosi, F., & Impicciatore, R. (2022). Transnational Parenthood and Migrant Subjective Well-Being in Italy. *International Migration Review, 56*(4), 1141–1166. <https://doi.org/10.1177/019791832111068507>
- Wallace, S., Nazroo, J., & Bécares, L. (2016). Cumulative effect of racial discrimination on the mental health of ethnic minorities in the United Kingdom. *American Journal of Public Health, 106*(7), 1294–1300. <https://doi.org/10.2105/AJPH.2016.303121>
- White, A., Dito, B. B., Veale, A., & Mazzucato, V. (2019). Transnational migration, health and well-being: Nigerian parents in Ireland and the Netherlands. *Comparative Migration Studies, 7*(1), 1–26. <https://doi.org/10.1186/s40878-019-0147-1>
- Zentgraf, K. M., & Chinchilla, N. S. (2012). Transnational Family Separation: A Framework for Analysis. *Journal of Ethnic and Migration Studies, 38*(2), 345–366. <https://doi.org/10.1080/1369183X.2011.646431>
- Zwysen, W., & Demireva, N. (2018). An Examination of Ethnic Hierarchies and Returns to Human Capital in the UK. *Social Inclusion, 6*(3), 6–33. <https://doi.org/10.17645/si.v6i3.1457>

Appendix

Table A1. Summary statistics by experience of TFS. The sample includes adult immigrants living in France, parents to at least one child, who were 18 or older at their last migration to France.

Variable	Migrated together				Children born / living abroad				Only past TFS				No child born abroad			
	Mean	S.d.	Min	Max	Mean	S.d.	Min	Max	Mean	S.d.	Min	Max	Mean	S.d.	Min	Max
Depression	0.24	0.43			0.29	0.46			0.26	0.44			0.23	0.42		
TFS children under 16																
Migrated together	0.51	0.50			0.03	0.17			0.03	0.18			-	-		
Current TFS	-	-			0.29	0.45			-	-			-	-		
Only past TFS	-	-			0.04	0.18			0.31	0.46			-	-		
No child <16 born abroad	0.19	0.39			0.12	0.33			0.25	0.43			0.79	0.41		
No child <16	0.31	0.46			0.53	0.50			0.41	0.49			0.21	0.41		
TFS children 16 and older																
Migrated together	-	-			-	-			0.00	0.06			-	-		
Current TFS	-	-			0.79	0.41			-	-			-	-		
Only past TFS	0.65	0.48			0.01	0.12			0.76	0.43			-	-		
No child 16+ born abroad	0.00	0.05			0.00	0.04			0.00	0.07			0.36	0.48		
No child 16+	0.35	0.48			0.19	0.39			0.23	0.42			0.64	0.48		
Female	0.70	0.46			0.50	0.50			0.52	0.50			0.54	0.50		
Age	45.52	7.97	24	60	48.96	7.84	26	59	47.96	7.80	23	60	43.16	8.56	22	59
Years since last arrival	11.95	8.23	0	39	13.72	8.54	0	39	15.75	8.60	2	41	17.87	9.23	0	41
Partnership status																
Living together with partner	0.84	0.36			0.58	0.49			0.78	0.41			0.85	0.36		
LAT couple	0.01	0.10			0.12	0.32			0.02	0.15			0.01	0.11		
Single	0.15	0.35			0.30	0.46			0.19	0.39			0.14	0.34		
Number of children in the household																
0	0.09	0.29			0.59	0.49			0.17	0.37			0.08	0.27		
1	0.20	0.40			0.21	0.41			0.22	0.41			0.27	0.44		
2	0.30	0.46			0.11	0.32			0.27	0.45			0.35	0.48		
3 or more	0.41	0.49			0.08	0.28			0.34	0.47			0.30	0.46		
Educational Attainment																

No diploma/NA	0.39	0.49			0.38	0.49			0.39	0.49			0.29	0.46		
Low	0.32	0.47			0.36	0.48			0.34	0.47			0.32	0.47		
High	0.29	0.45			0.25	0.43			0.27	0.44			0.39	0.49		
Pre-migration subjective social status	5.42	2.13	0	10	5.32	2.30	0	10	5.34	2.30	0	10	5.49	2.09	0	10
Region of origin																
Northern Africa	0.28	0.45			0.09	0.29			0.20	0.40			0.31	0.46		
EU and West	0.26	0.44			0.21	0.41			0.16	0.36			0.15	0.36		
Sub-Saharan Africa	0.15	0.36			0.51	0.50			0.31	0.46			0.20	0.40		
Middle East and Balkans	0.13	0.34			0.05	0.21			0.10	0.30			0.13	0.34		
Asia	0.07	0.25			0.03	0.17			0.04	0.19			0.02	0.15		
Former Soviet Union	0.09	0.29			0.09	0.28			0.15	0.36			0.16	0.36		
Latin America and Caribbean	0.02	0.13			0.02	0.15			0.04	0.20			0.02	0.14		
French nationality	0.26	0.44			0.20	0.40			0.31	0.46			0.43	0.50		
Legal Status																
Short-term	0.22	0.42			0.29	0.45			0.22	0.42			0.19	0.39		
Long-term	0.19	0.39			0.23	0.42			0.25	0.43			0.24	0.43		
No need	0.48	0.50			0.38	0.49			0.46	0.50			0.52	0.50		
Other/NA	0.11	0.32			0.11	0.31			0.07	0.26			0.05	0.22		
Employment status																
Employed	0.55	0.50			0.71	0.45			0.72	0.45			0.69	0.46		
Inactive	0.31	0.46			0.17	0.37			0.15	0.36			0.19	0.39		
Unemployed	0.14	0.35			0.12	0.32			0.13	0.34			0.12	0.32		
Monthly salary																
Not employed	0.44	0.50			0.28	0.45			0.28	0.45			0.30	0.46		
<1200	0.17	0.37			0.17	0.37			0.17	0.38			0.12	0.33		
1200-1800	0.19	0.39			0.29	0.46			0.29	0.46			0.25	0.43		
>1800	0.12	0.33			0.14	0.35			0.16	0.37			0.21	0.41		
NA	0.08	0.27			0.12	0.32			0.10	0.30			0.12	0.32		
N	829				540				608				3801			

Table A2. Experience of TFS (any age, children younger than 16, children aged 16 or older) by gender.

	TFS children any age			TFS children <16			TFS children 16+		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Migrated together	245	584	829	151	306	457	146	396	542
Current TFS	271	269	540	120	35	155	186	242	428
Only past TFS	290	318	608	140	67	207	204	265	469
No child in age group born abroad	1736	2065	3801	1594	1792	3386	592	794	1386
No child in age group				537	1036	1573	1414	1539	2953
Total	2542	3236	5778	2542	3236	5778	2542	3236	5778

Table A3. Experience of TFS (children of any age) by gender

	Experience of TFS	Employed	Inactive	Unemployed	Total
Men	Migrated together	185	26	34	245
	Current TFS	213	23	35	271
	Only past TFS	239	17	34	290
	No child born abroad	1440	76	220	1736
	Total	2077	142	323	2542
Women	Migrated together	269	234	81	584
	Current TFS	173	68	28	269
	Only past TFS	197	73	48	318
	No child born abroad	1186	648	231	2065
	Total	1825	1023	388	3236

Table A4. Comparison between the main variables for experience of TFS (any age and children aged 16 or older) and the ones excluding children aged 16 or older born in France/migrated to France but living abroad (robustness check #1) and excluding cases in which the youngest child was older than 18 at separation (robustness check #2)

Experience of TFS	Migrated together	Current TFS	Only past TFS	No child in age group born abroad	No child in age group	Dropped	Total
Robustness check #1 - children any age							
Migrated together	829	0	0	-	0	0	829
Current TFS	34	468	9	-	0	29	540
Only past TFS	0	0	608	-	0	0	608
No child born abroad	0	0	0	-	3801	0	3801
Total	863	468	617	-	3801	29	5778
Robustness check #2 - children any age							
Migrated together	829	0	0	-	0	0	829
Current TFS	34	389	9	-	0	108	540
Only past TFS	0	0	608	-	0	0	608
No child born abroad	0	0	0	-	3801	0	3801
Total	863	389	617	-	3801	108	5778
Robustness check #1 - children aged 16 or older							
Migrated together	542	0	0	0	0	0	542
Current TFS	35	355	8	0	0	30	428
Only past TFS	0	0	469	0	0	0	469
No child 16+ born abroad	0	0	0	1386	0	0	1386
No child 16+	0	0	0	0	2953	0	2953
Total	577	355	477	1386	2953	30	5778
Robustness check #2 - children aged 16 or older							
Migrated together	542	0	0	0	0	0	542
Current TFS	35	276	8	0	0	109	428
Only past TFS	0	0	469	0	0	0	469
No child 16+ born abroad	0	0	0	1386	0	0	1386
No child 16+	0	0	0	0	2953	0	2953
Total	577	276	477	1386	2953	109	5778

Table A5. Full models for Figure 3.

	Experience of TFS from any child					Experience of TFS from children younger than 16					Experience of TFS from children aged 16 or older				
	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5
Experience of TFS ref. migrated together															
Current TFS	0.14**	0.14**	0.08+	0.08+	0.09+	0.32***	0.33***	0.23*	0.22*	0.24*	0.07+	0.07+	0.01	0.01	0.01
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.09)	(0.09)	(0.10)	(0.09)	(0.09)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Only past TFS	0.05	0.04	0.03	0.03	0.03	0.02	0.03	0.02	0.01	0.01	0.06	0.06	0.03	0.04	0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
No child in age group born abroad	0.01	0.00	-0.01	-0.01	-0.01	0.03	0.04	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.03
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
No child in age group						0.06*	0.06	0.00	0.00	0.01	0.01	0.02	-0.00	-0.00	-0.00
						(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Woman	0.09***	0.09***	0.07***	0.07***	0.08***	0.10***	0.10***	0.08***	0.09***	0.09***	0.09***	0.09***	0.07***	0.07***	0.07***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Age		-0.00	-0.00	-0.00	-0.00		0.00	0.00	0.00	0.00		0.00	-0.00	-0.00	-0.00
		(0.00)	(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)	(0.00)
Years since last arrival		0.00	0.00	0.00	0.00		-0.00	-0.00	-0.00	0.00		-0.00	-0.00	-0.00	-0.00
		(0.00)	(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)	(0.00)
Partnership status ref. cohabiting couple															
LAT couple			0.08	0.08	0.08			0.06	0.06	0.06			0.10	0.10	0.10
			(0.07)	(0.07)	(0.07)			(0.07)	(0.07)	(0.07)			(0.07)	(0.07)	(0.07)
Single			0.17***	0.17***	0.16***			0.16***	0.16***	0.16***			0.17***	0.17***	0.16***
			(0.03)	(0.03)	(0.03)			(0.03)	(0.03)	(0.03)			(0.03)	(0.03)	(0.03)
Number of children in household ref. 0															
1			0.02	0.02	0.02			0.01	0.01	0.02			-0.01	-0.01	-0.01
			(0.04)	(0.04)	(0.04)			(0.04)	(0.04)	(0.04)			(0.04)	(0.04)	(0.04)
2			-0.03	-0.03	-0.04			-0.04	-0.04	-0.04			-0.06+	-0.06+	-0.06+
			(0.03)	(0.03)	(0.03)			(0.03)	(0.03)	(0.03)			(0.04)	(0.04)	(0.04)
3+			-0.04	-0.04	-0.05			-0.04	-0.05	-0.05			-0.07*	-0.07*	-0.08*
			(0.03)	(0.03)	(0.03)			(0.04)	(0.04)	(0.04)			(0.03)	(0.03)	(0.03)
Highest level of education ref. no diploma/NA															
Low				0.00	0.01				0.00	0.01				0.00	0.01
				(0.02)	(0.02)				(0.02)	(0.02)				(0.02)	(0.02)
High				0.01	0.01				0.00	0.01				0.01	0.01
				(0.02)	(0.03)				(0.02)	(0.02)				(0.02)	(0.02)
				-0.01	-0.01				-0.01	-0.01				-0.01	-0.01
				(0.00)	(0.00)				(0.00)	(0.00)				(0.00)	(0.00)
Subjective social status in COB															
Region of origin ref. Northern Africa															
EU and West					-0.06*					-0.05+					-0.06*
					(0.03)					(0.03)					(0.03)
Sub-Saharan Africa					-0.04					-0.03					-0.02
					(0.03)					(0.02)					(0.03)
Middle East and Balkans					-0.05					-0.04					-0.05
					(0.03)					(0.03)					(0.03)
Former Soviet Union					0.04					0.06					0.05
					(0.05)					(0.05)					(0.05)
Asia					-0.13***					-0.12***					-0.12***
					(0.03)					(0.03)					(0.03)

Latin America and Caribbean						-0.08 (0.05)					-0.07 (0.05)					-0.08 (0.05)
French nationality						-0.02 (0.02)					-0.03 (0.02)					-0.03 (0.02)
Constant	0.17*** (0.02)	0.19** (0.07)	0.23** (0.08)	0.26** (0.08)	0.30*** (0.09)	0.15*** (0.03)	0.11 (0.07)	0.14+ (0.08)	0.18* (0.08)	0.20* (0.08)	0.18*** (0.03)	0.16+ (0.09)	0.25* (0.10)	0.28** (0.10)	0.32** (0.10)	
Observations	5778	5778	5778	5778	5778	5778	5778	5778	5778	5778	5778	5778	5778	5778	5778	

Standard errors in parentheses

+ p<0.1 * p<0.05 ** p<0.01 *** p<0.001

Table A6. Full models for Figure 4 (columns 1-3); results from LPM with interaction between experience of TFS and legal status (columns 4-6)

	TFS x Gender			TFS x legal status		
	TFS any child	TFS child <16	TFS child 16+	TFS any child	TFS child <16	TFS child 16+
Experience of TFS ref. migrated together						
Current TFS	0.11 (0.07)	0.24* (0.11)	-0.03 (0.07)	0.09 (0.08)	0.33+ (0.17)	-0.00 (0.06)
Only past TFS	-0.00 (0.05)	0.01 (0.06)	-0.00 (0.06)	-0.03 (0.04)	-0.04 (0.07)	-0.02 (0.05)
No child in age group born abroad	-0.01 (0.04)	0.03 (0.05)	0.00 (0.06)	-0.05 (0.03)	-0.02 (0.04)	-0.01 (0.04)
No child in age group		0.01 (0.06)	-0.01 (0.06)		-0.06 (0.05)	-0.04 (0.04)
Woman	0.07 (0.04)	0.09+ (0.05)	0.06 (0.06)	0.08*** (0.02)	0.09*** (0.02)	0.07*** (0.02)
Experience of TFS x Gender						
Current TFS x Woman	-0.05 (0.09)	-0.04 (0.17)	0.06 (0.09)			
Only past TFS x Woman	0.07 (0.07)	0.01 (0.09)	0.08 (0.08)			
No child in age group born abroad x Woman	0.01 (0.05)	-0.01 (0.06)	0.04 (0.07)			
No child in age group x Woman	0.01 (0.05)	0.01 (0.06)	-0.01 (0.06)			
Legal status ref. does not need a res. permit						
Short-term				-0.05 (0.05)	-0.05 (0.06)	-0.11+ (0.06)
Long-term				-0.06 (0.05)	-0.10+ (0.06)	-0.02 (0.07)
Other/NA				0.01 (0.07)	0.04 (0.09)	0.07 (0.10)
Exp. TFS x Legal status						
Current TFS x Short-term				0.06 (0.11)	-0.07 (0.21)	0.15 (0.10)
Current TFS x Long-term				-0.01 (0.11)	-0.04 (0.23)	-0.01 (0.10)
Current TFS x Other/NA				-0.16 (0.12)	-0.48* (0.22)	-0.12 (0.14)
Only past TFS x Short-term				0.12 (0.08)	0.16 (0.12)	0.15 (0.10)
Only past TFS x Long-term				0.15+ (0.08)	0.08 (0.09)	0.14 (0.10)
Only past TFS x Other/NA				0.03 (0.12)	-0.09 (0.13)	0.02 (0.17)
No child in age group born abroad x Short-term				0.07 (0.06)	0.06 (0.07)	0.04 (0.08)
No child in age group born abroad x Long-term				0.09 (0.06)	0.11+ (0.06)	0.06 (0.08)
No child in age group born abroad x Other/NA				0.09 (0.09)	-0.01 (0.11)	0.07 (0.14)
No child in age group x Short-term					0.09 (0.08)	0.15* (0.07)
No child in age group x Long-term					0.19** (0.07)	0.03 (0.08)
No child in age group x Other/NA					0.07 (0.11)	-0.06 (0.12)
Age	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Years since last arrival	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Partnership status ref. cohabiting couple						
LAT couple	0.07 (0.07)	0.06 (0.07)	0.10 (0.07)	0.08 (0.07)	0.06 (0.07)	0.10 (0.07)
Single	0.16*** (0.03)	0.16*** (0.03)	0.16*** (0.03)	0.16*** (0.03)	0.16*** (0.03)	0.16*** (0.03)
Number of children in household ref. 0						
1	0.02	0.02	-0.01	0.02	0.01	-0.00

	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)
2	-0.03	-0.04	-0.06+	-0.04	-0.04	-0.06+
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)
3+	-0.05	-0.05	-0.08*	-0.05	-0.06	-0.08*
	(0.03)	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)
Highest level of education ref. no diploma/NA						
Low	0.01	0.01	0.01	0.01	0.00	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
High	0.01	0.01	0.01	0.01	0.00	0.01
	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)
Subjective social status in COB	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Region of origin ref. Northern Africa EU and West						
	-0.06*	-0.05+	-0.06*	-0.06*	-0.05+	-0.05+
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Sub-Saharan Africa	-0.04	-0.03	-0.02	-0.04	-0.03	-0.02
	(0.03)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
Middle East and Balkans	-0.05	-0.04	-0.05	-0.05	-0.04	-0.05
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Former Soviet Union	0.05	0.06	0.05	0.04	0.06	0.05
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Asia	-0.12***	-0.12***	-0.12***	-0.13***	-0.12***	-0.12***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Latin America and Caribbean	-0.08	-0.07	-0.08	-0.08	-0.08	-0.07
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)
French nationality	-0.02	-0.03	-0.03			
	(0.02)	(0.02)	(0.02)			
Constant	0.30***	0.20*	0.34**	0.32***	0.24**	0.34**
	(0.09)	(0.09)	(0.11)	(0.09)	(0.09)	(0.11)
Observations	5778	5778	5778	5778	5778	5778

Standard errors in parentheses

+ p<0.1 * p<0.05 ** p<0.01 *** p<0.001

Table A7. Full models for Figure 5

	Men		Women		
	Coeff.	S.E.	Coeff.	S.E.	
Experience of TFS ref. No child born abroad					
Migrated together	0.02	(0.05)	0.01	(0.05)	0.02
Current TFS	0.13	(0.09)	0.01	(0.06)	0.13
Only past TFS	0.03	(0.04)	-0.03	(0.05)	0.03
Employment status ref. employed					
Inactive	0.16*	(0.07)	-0.05	(0.04)	0.16*
Unemployed	0.10+	(0.05)	0.07	(0.06)	0.10+
Exp. TFS x Empl. status					
Migrated together x Inactive	0.03	(0.18)	0.02	(0.06)	0.03
Migrated together x Unemployed	0.02	(0.12)	-0.14	(0.09)	0.02
Current TFS x Inactive	-0.29+	(0.15)	0.13	(0.10)	-0.29+
Current TFS x Unemployed	0.18	(0.15)	-0.01	(0.16)	0.18
Only past TFS x Inactive	0.29*	(0.13)	0.18+	(0.09)	0.29*
Only past TFS x Unemployed	-0.12	(0.08)	0.24*	(0.11)	-0.12
Age	-0.00+	(0.00)	0.00	(0.00)	-0.00+
Years since last arrival	0.00	(0.00)	0.00	(0.00)	0.00
Partnership status ref. cohabiting couple					
LAT couple	0.07	(0.08)	0.02	(0.10)	0.07
Single	0.15**	(0.05)	0.14***	(0.03)	0.15**
Number of children in household ref. 0					
1	0.02	(0.05)	0.02	(0.04)	0.02
2	-0.04	(0.05)	-0.02	(0.05)	-0.04
3+	-0.05	(0.05)	-0.04	(0.05)	-0.05
Highest level of education ref. no diploma/NA					
Low	0.02	(0.03)	0.02	(0.03)	0.02
High	0.02	(0.04)	0.01	(0.04)	0.02
Subjective social status in COB	-0.01	(0.01)	-0.01	(0.01)	-0.01
Region of origin ref. Northern Africa					
EU and West	-0.09*	(0.04)	-0.03	(0.04)	-0.09*
Sub-Saharan Africa	-0.05	(0.04)	-0.03	(0.04)	-0.05
Middle East and Balkans	-0.04	(0.04)	-0.07	(0.04)	-0.04
Former Soviet Union	-0.01	(0.08)	0.07	(0.07)	-0.01
Asia	-0.15***	(0.03)	-0.11*	(0.05)	-0.15***
Latin America and Caribbean	0.01	(0.10)	-0.11+	(0.07)	0.01
French nationality	-0.01	(0.04)	-0.03	(0.03)	-0.01
Constant	0.35**	(0.11)	0.32**	(0.10)	0.35**
Observations	2542		3236		2542

Standard errors in parentheses

+ p<0.1 * p<0.05 ** p<0.01 *** p<0.001

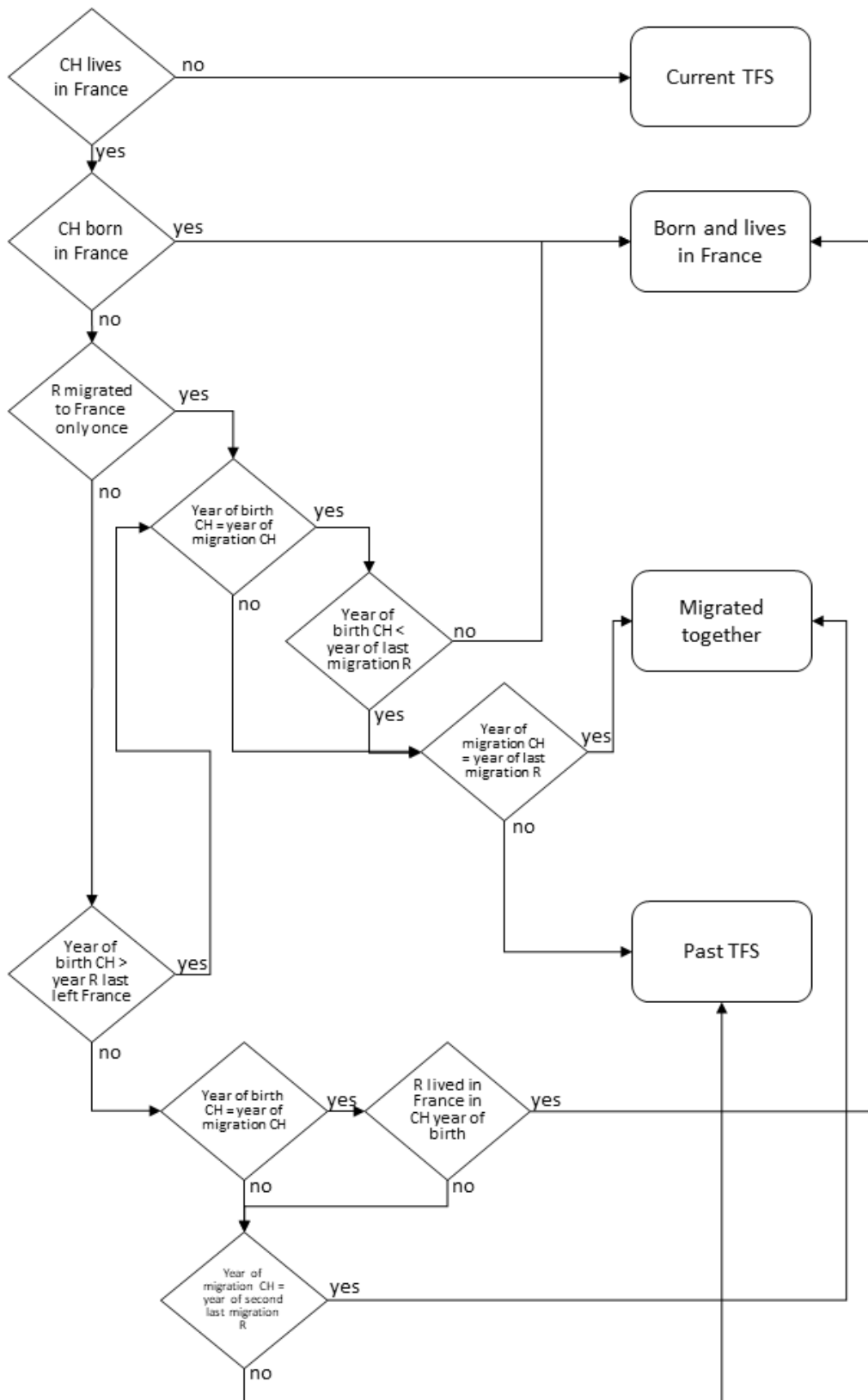


Figure A 1 Flowchart to code children into TFS categories. CH=child; R=respondent

Parenting from abroad: additional analyses

This sections complements chapter 3 by analysing differences in timing of migration and length of separation by experience of TFS and exploring differences in the association between TFS and mental health by age of the youngest child affected by parental migration (whether currently or formerly separated, or migrated together with the parent), and length of stay / separation.

In Figure 1 I present the distribution of age of the youngest child at parental migration by parental experience of TFS. Currently separated children who were born in France or who lived there at some point are excluded from this part of the analyses, as data do not allow to assess their age at separation. Note that it is the age of the youngest child corresponding to the relevant category of experience of TFS being reported, not the age of the youngest child at the time of parental migration in general. This means that for currently transnational parents, the age at separation of the youngest *currently separated* child is reported, but parents might have younger children with whom they migrated together or reunited after a period of TFS. For example, in the hypothetical case presented in Table 1, the age at parental migration reported in the analyses is that of child number 3.

Table 1. Fictional case to illustrate the identification of the youngest child in the relevant category for currently transnationally separated parents

Respondent	Child	Age at respondent's migration	Experience of TFS
1	1	1	Past TFS
1	2	3	Migrated together
1	3	6	Current TFS
1	4	8	Current TFS
1	5	10	Current TFS

Individuals who migrated with all their born abroad children typically did so when the youngest of these children was 10 or younger (90% of respondents in the category), and especially between ages 1 and 3 (50%). Parents who separated and then reunited with (some of) their children also tend to have migrated when the youngest of these children was younger than 10 (80% if the cases in the category), with the mode being 0. The children's age at separation is much less skewed for parents who were still separated from a child at the time of the survey, with 50% of parents having migrated when the youngest of the currently separated child was 8 or older. The difference in youngest child's age at separation between reunited and currently

transnational parents is easily explained by the fact that only children younger than 18 are eligible for family reunification. Thus, parents leaving behind children older than 10 have lower chances to be able to fulfil the reunification criteria while the children are still eligible. A part of the difference might also be due to different selection into and pathways to migration and transnationalism among parents.

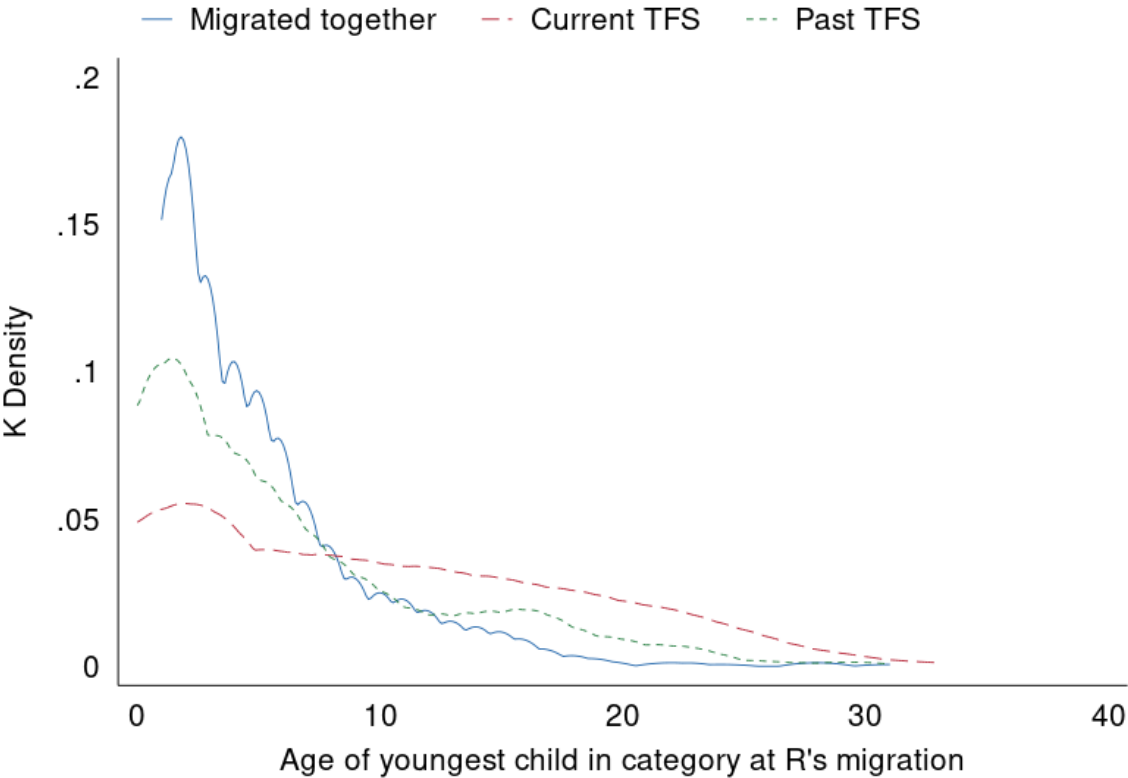


Figure 1. Age of the youngest child at parental migration by parental experience of TFS

I report the distribution of length of separation by age at separation for the youngest *formerly separated* child for each respondent in Figure 2. The modal length of separation is one year for each age group. The distribution of years of separation is particularly skewed for children separated between age 6 and 15 or when older than 15, as 50% of these separation lasted less than 4 years (separation at age 6-15) or 3 years (separation at age 16+). Longer separations are common instead for children left behind at ages 0 to 5: 40% of these separations lasted between 5 and 15 years. Once again, this is likely a reflection of family reunification policies: parents who wish to reunite with their children through the formal channel must do so while the children are underage, meaning that the pressure is higher for parents who left when their children were already of school age, compared to parents who left behind infant children.

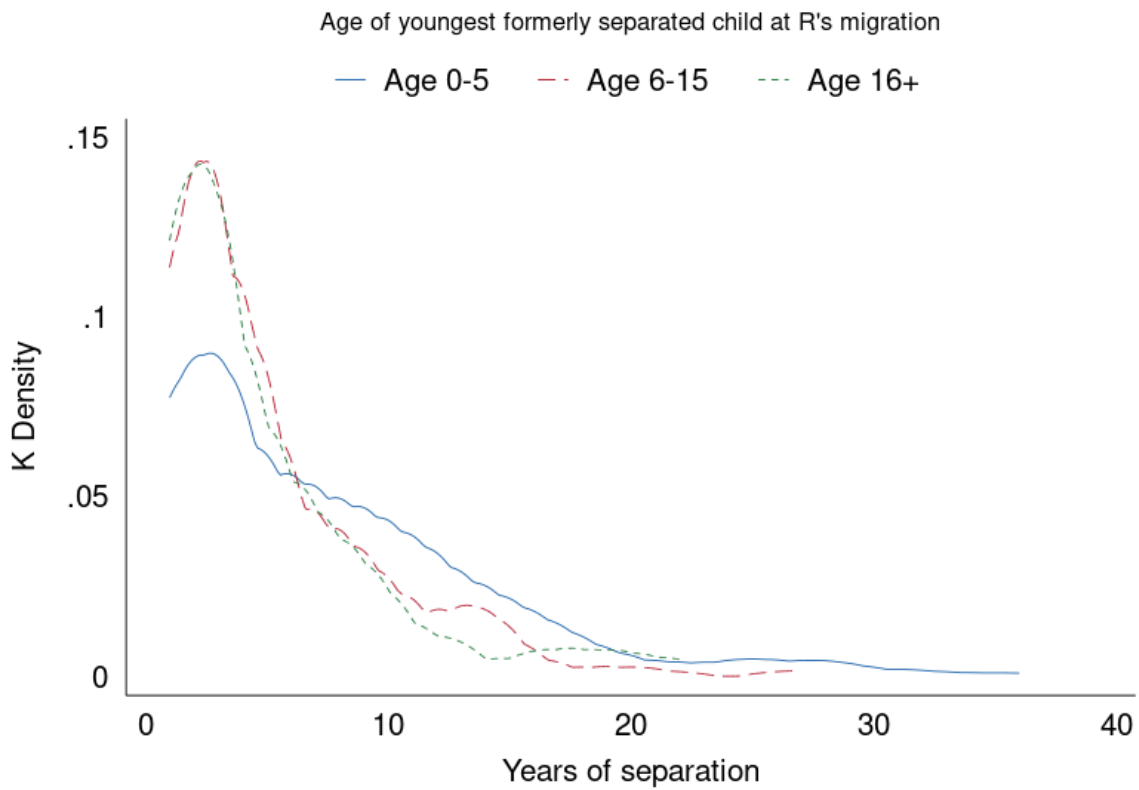


Figure 2. Distribution of years of separation by age at separation of the youngest formerly separated child of each respondent

Finally, the distribution of years since (last) separation by age of the youngest child at separation for *currently separated* parents is presented in Figure 3. It is noticeable that, while the median separation length of *formerly* transnational parents from their youngest children is about 2-3 years (ref. Figure 2), the median length of *ongoing* TFS is 15 years for transnational parents who migrated when their youngest child was between 0 and 5 years old, and 10 years for parents who left behind children ages 6-15. This suggests that for these migrants, transnational separation is likely to be a permanent condition rather than a transitory one.

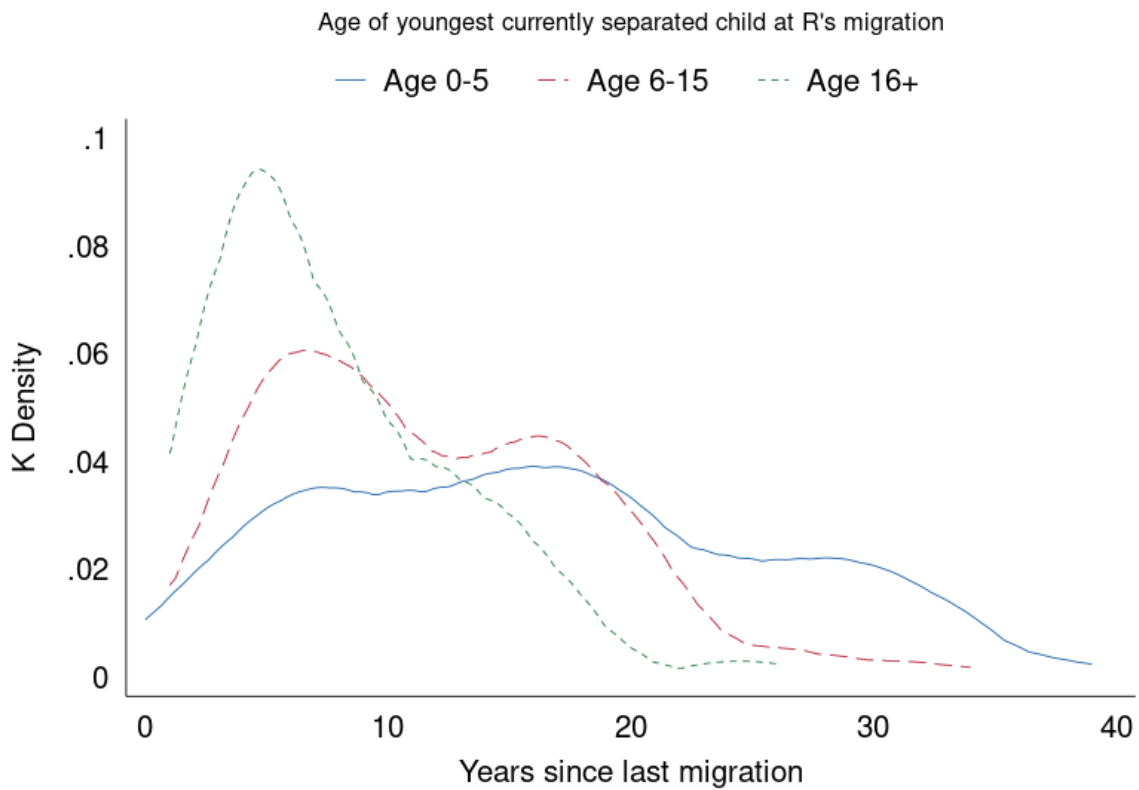


Figure 3. Distribution of years of separation by age at separation of the youngest currently separated child.

The results from the LPM with triple interactions between experience of TFS, age of the youngest child at parental migration, and years since last arrival to France are reported in Figure 4. I only report results for parents whose youngest child was aged 0-5 or 6-15 at parental migration, as there are no significant results for children aged 16 or older at parental migration. The main result is that the association between current TFS and risk of depression is stronger for recent immigrants, and it reduces over time. There are two potential explanations for this. First, the finding could reflect within-individual variation: TFS gets easier over time, leading to better outcomes. Second, the result might be due to selection into reunification: parents who suffer most from TFS are the most likely to speed their children's migration to France or to re-migrate themselves. While it is not possible to disentangle the two effects without panel data, I believe that the second explanation is the most likely, as it is in line with qualitative literature: some research mentioned emotional distress in the migrant parent (Dreby, 2006) or in the children (Bonizzoni, 2015) as a factor for expediting reunification plans. On the other hand, groups that are more likely to experience transnational separation as a long-term or permanent

condition due to cultural norms are also less likely, due to the same cultural norms, to suffer emotionally from the separation.

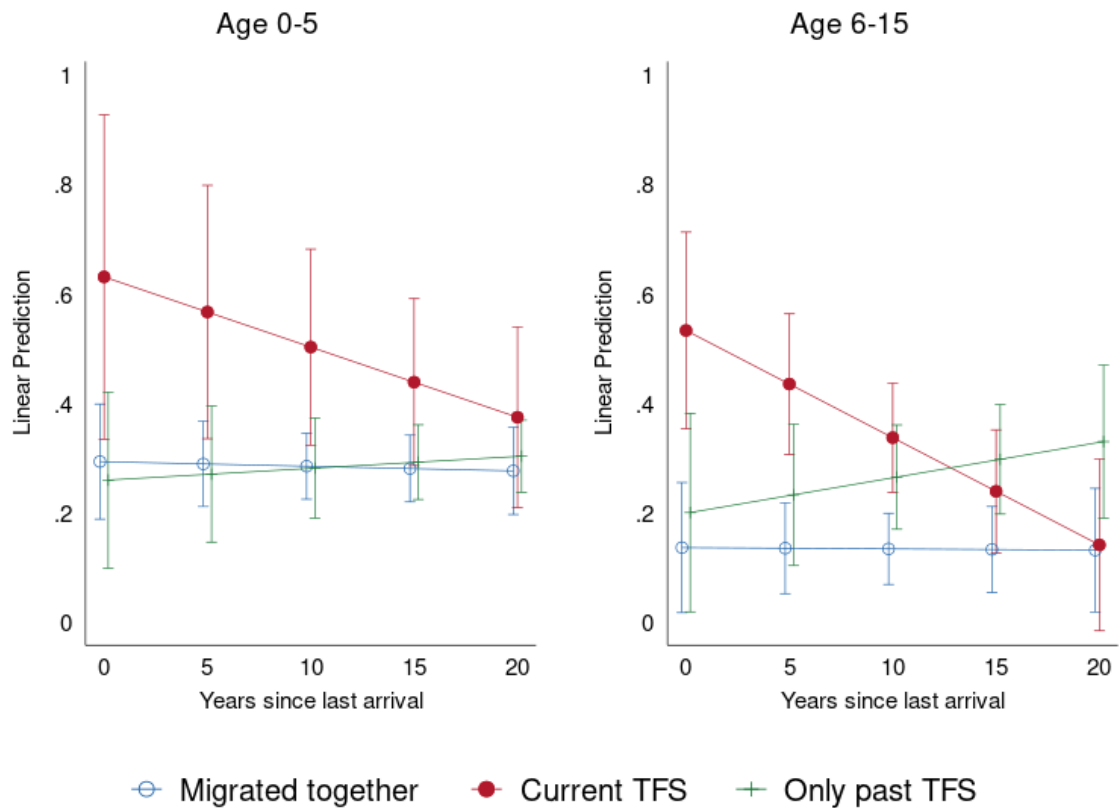


Figure 4. Linear predictions of chance of experiencing depressive symptoms by years since last arrival to France, age of youngest child at migration and experience of TFS from linear probability models.

References

- Bonizzoni, P. (2015). Here or There? Shifting Meanings and Practices in Mother–Child Relationships across Time and Space. *International Migration*, 53(6), 166–182. <https://doi.org/10.1111/imig.12028>
- Dreby, J. (2006). Honor and Virtue: Mexican Parenting in the Transnational Context. *Gender & Society*, 20(1), 32–59. <https://doi.org/10.1177/0891243205282660>

Conclusions

Migration is a major life decision, that has potentially deep and long-lasting implications for the lives of individuals, of their families and of their communities. In addition, migrants are a highly heterogeneous group, in terms of the pathways that lead to their decision to migrate, of their migration trajectories, and of their origin and destination life situations. Throughout this dissertation, I have aimed at studying how migration as a *process* affects individuals' mental health, taking into account, whenever possible, heterogeneities in migration experiences. I have done this adopting elements from the life course paradigm – in particular those of life-span development and of linked lives – to study trajectories and determinants of mental health among immigrants residing in the UK (chapters 1 and 2) and in France (chapter 3).

6.1. Summary of results

In the first chapter, I have focused on studying how immigrants' mental health evolves over time since their arrival in the destination country. The main challenge tackled in this chapter is that of disentangling variation with age from variation with time since arrival, while taking into account differences between cohorts of immigration and of birth. To achieve this, I have proposed a strategy based on stratifying the analyses by immigrants' age at arrival and comparing them with same-age natives, using fixed-effects panel regressions to focus exclusively on within-individual variation. I have found that, contrary to previous literature's findings, immigrants' mental health does not seem to deteriorate with length of residence. While it does deteriorate over time, this deterioration is similar – or even *slower* – than that observed among same-age natives. The cross-sectional observation of recent immigrants having better mental health than established ones seems to be due to differences between immigration and birth cohorts.

In the second and third chapters, I have aimed at studying how different pathways to migration affect immigrants' mental health in the short- to long- term. I have done so focusing on family migration and on transnational family separation. In the second chapter, I have looked at differences in mental health levels among adult immigrants living in the UK who experienced parental migration to the UK as children. I have found that, under some circumstances, women who experienced transnational family separation from both parents in childhood as a consequence of parental migration then to have worse mental health, even as adults, compared to women who migrated as children with their parents. I have found no such difference among

men. While I have investigated differences in the association between experience of transnational family separation in childhood by timing of separation, I have found no clearly interpretable pattern.

Finally, in the third chapter I have studied the association between current or past transnational separation from a child and mental health among immigrant *parents* living in France. I have found that transnational parents tend to have worse mental health than immigrant parents who migrated with all their born-abroad children. This association is mostly driven by parents with children younger than 16 and does not differ significantly between men and women. Finally, I explored differences in the association between transnational parenthood and mental health by gender and employment status. Contrary to expectations based on qualitative literature, the association between transnational parenthood and mental health does not statistically significantly differ by employment status for men. Among women, however, current transnational separation from a child is associated with worse mental health only among *inactive* immigrant mothers, and *past* transnational motherhood is associated with worse mental health among both inactive and unemployed mothers. No association between *past* transnational parenthood and mental health is found among men.

Chapters two and three highlight that transnational family separation is a very common experience among immigrants, even only considering separation between parents and minor children: in the UK, about 20% of all immigrant adults in the Understanding Society sample were transnationally separated from their parents as children (ref. Appendix B in chapter two); in France, about 20% of all immigrant parents in the TeO2 sample are or were transnationally separated from a child at the time of data collection, corresponding to 58% of all immigrant parents with at least one child born or living outside of France.

6.2. Contributions

Overall, this dissertation brings significant contributions to the literature on immigrants' mental health. First, previous literature rarely investigated individual-level variation in mental health among immigrants, or did not successfully disentangle variation with age from that with length of residence. I have tackled this issue in the first empirical chapter, finding that immigrants do not experience a stronger mental health deterioration than natives over time. This result contrasts both with cross-sectional findings, which I show being driven by differences between immigration and birth cohorts, and with the rich literature on immigrants' disadvantages across life domains, including socioeconomic status, social support, and exposure to racial/ethnic

discrimination and harassment. Consequently, the results of chapter one suggest that immigrants are a particularly resilient group. Future research should investigate to what extent this observed resilience is a consequence of “salmon bias” – immigrants who experience disproportionate mental health deterioration over time being more likely to remigrate – and how much of it is rather due to positive selection into migration – immigrants having better mental health than natives upon arrival. Another challenge for future research is to measure the effect of time since arrival on immigrants’ mental health using *non-migrants in the origin countries*, rather than natives in the destination ones, as the reference group for the effect of age on mental health. This approach would allow to assess whether the similarity in mental health trajectories between immigrants and natives is a consequence of immigrants being exposed to the destination country context, or if it reflects a similarity in typical mental health trajectories across countries.

The second contribution of this dissertation is the analysis of the long-term association between transnational family separation and mental health. Previous quantitative literature on transnational separation and mental health has so far focused only on currently separated individuals (e.g. Graham & Jordan, 2011; White et al., 2019), or on recently reunified children (Eremenko & Bennett, 2018; Suárez-Orozco et al., 2011). In chapters two and three, I have looked at long-term associations between mental health and transnational separation from a parent and from a child, respectively. In both chapters, I found evidence for such an association only among women, and in the third chapter, only among those who were inactive or unemployed at the time of the interview. These results are generally in line with the common finding in mental health literature that girls (Bakker et al., 2010; Bubonya et al., 2017) and women (Bilodeau et al., 2020; Marchand et al., 2016) tend to be more sensitive than boys and men to social and family-related stressors, at least in terms of symptoms of depression and anxiety, which are the main target of the measures of mental health used in the two chapters. In addition, results from chapter three highlight potential differences by type of migration for women (e.g. first-mover versus family reunification), which might affect their experience of transnational parenthood, and should be further explored by qualitative literature. More broadly, these results highlight the importance of studying migrations as a family-level process – for example, considering other family members’ migration timelines – in mental health research and in migration studies in general, as well as of considering the impact of

geographically distant social and family relations in mental health research on the general population.

The third contribution of this dissertation is the use of a destination-country approach, using nationally representative surveys. Previous literature on transnational family separation and mental health has typically adopted a single- or few- origin(s) in single-destination approach, often with ad-hoc data collections (e.g. Haagsman et al., 2015; Mazzucato et al., 2017; White et al., 2019). While this approach has the advantages of allowing to measure the target variables with precision and of giving detailed insight into a case study, it does not allow to assess whether the findings are relevant for immigrants at large, nor to study how common experiences of transnational separation are in the immigrant population in a country. In addition, these studies tend to have relatively small sample numbers, not allowing for detailed analyses of heterogeneities. By using large-scale nationally representative surveys, in chapter two and three and in the respective complementary sections I was able to provide an assessment of how common transnational family separation is across national origin groups, and a description of the timing of such separations.

6.3. Limitations and future research

The chapters of this dissertation represent only one step towards a more life-course informed research on immigrants' mental health, and have significant limitations that future research should address. First, sample size limitations did not allow to analyse heterogeneities by race/ancestry in chapters two and three. While I attempted such an analysis in chapter two (Appendix C), it led to non-significant results which did not allow to draw substantial conclusions. Immigrants with different origins are likely to have different experiences in the destination countries in general and different consequences to transnational family separation in particular, due to differences in the immigration policies applying to each group, in the cultural norms defining family relations, and in the treatment experienced in the destination country by native majority individuals.

Second, when I have looked into heterogeneities in the second and third chapters, I have found at best mixed results. In the second chapter I have tried to look at heterogeneities by timing and duration of the separation, but I have only found mixed results which do not allow for a clear interpretation. Similarly, the analyses of heterogeneities by legal and employment status in the third chapter allow very limited insight into the phenomenon. In both cases, this is largely due

to the relatively small sample sizes, and in the second chapter, to the imprecision of the measure of experience of transnational family separation.

Third, in the chapters on transnational separation between parents and children, I have not considered the role of siblings (of children) – i.e., number of children, whether separation is worse when some siblings are with the parents – nor that of the surrogate parents in the country of origin. Qualitative research suggests that both matter for the mental health of both parents and children.

Fourth, a broader limitation of this dissertation is that it is composed of three single-destination studies, relative to only two European countries, both with a long history as colonial powers and as net immigration countries. Therefore, the findings might not extend to other European countries with a shorter or non-existent colonial history, that more recently became net-immigration countries, and/or with different immigrant population compositions (in terms of origins, gender, reason to migrate), immigration policies, and integration systems.

Finally, throughout the dissertation I adopted a definition of mental health as a continuum from positive to negative mental health, as described in the Introduction. In line with this, in chapters one and two I have measured mental health using the Short Form 12 Mental Component Summary (SF-12 MCS), which taps into positive affect, functioning, and negative affect. However, the data used in the third chapter only include a measure of depression, hence only measuring *negative* mental health, and that cannot be used as a continuous variable. Further research is therefore needed to replicate chapter three using a broader definition of mental health, in line with previous literature on transnational parenthood. A broader limitation concerning the measurement of mental health throughout the dissertation is that research assessing the measurement invariance of mental health scales by country of origin, race/ethnicity and immigrant status is scarce, and has sometimes found differences in response patterns between some groups (OECD, 2023) – especially concerning recent immigrants. While this cannot be a reason to give up on research on immigrants' mental health, it is important that future research keeps improving and translating existing measures of mental health to maximise their cross-cultural comparability.

Addressing these limitations and further expanding the life course perspective of immigrants' mental health are challenges for future research. To enable such research, it is paramount that more comparable, large-scale and panel surveys with nationally representative samples of

immigrants are collected in different European countries, collecting retrospective information on immigrants' pre-migration life histories as well as detailed information on their and their family members' migration trajectories and on continuing transnational ties. Such surveys should ideally aim to sample recent and short-term migrants, and to follow them through further migration trajectories. In addition, surveys – whether specifically targeted at immigrants or at the general population – should include information on different dimensions of mental health, using whenever possible tools that have been validated for comparisons by gender, age, and cultural group.

Overall, the results of this dissertation call for an approach to migrations research that is as sensitive as possible to the complex interactions between gender, pre-migration life histories, migration trajectories, transnational ties, and origin- and destination- contextual characteristics and to how these can shape immigrants' outcomes and trajectories in destination countries. For this to be possible, we need more and better data, for more European countries. In addition, quantitative migration research would benefit from taking more cues from qualitative research, as in many cases research questions and expectations are biased by (Northern-)Eurocentric views, for example on gender and family relations, which the qualitative literature has treated more critically.

References

- Bakker, M. P., Ormel, J., Verhulst, F. C., & Oldehinkel, A. J. (2010). Peer Stressors and Gender Differences in Adolescents' Mental Health: The TRAILS Study. *Journal of Adolescent Health, 46*(5), 444–450. <https://doi.org/10.1016/j.jadohealth.2009.10.002>
- Bilodeau, J., Marchand, A., & Demers, A. (2020). Work, family, work–family conflict and psychological distress: A revisited look at the gendered vulnerability pathways. *Stress and Health, 36*(1), 75–87. <https://doi.org/10.1002/smi.2916>
- Bubonya, M., Cobb-Clark, D. A., & Wooden, M. (2017). Job loss and the mental health of spouses and adolescent children. *IZA Journal of Labor Economics, 6*(1), 1–27. <https://doi.org/10.1186/s40172-017-0056-1>
- Eremenko, T., & Bennett, R. (2018). Linking the family context of migration during childhood to the well-being of young adults: Evidence from the UK and France. *Population, Space and Place, 24*(7), e2164. <https://doi.org/10.1002/psp.2164>

- Graham, E., & Jordan, L. P. (2011). Migrant Parents and the Psychological Well-Being of Left-Behind Children in Southeast Asia. *Journal of Marriage and Family*, 73(4), 763–787. <https://doi.org/10.1111/J.1741-3737.2011.00844.X>
- Haagsman, K., Mazzucato, V., & Dito, B. B. (2015). Transnational families and the subjective well-being of migrant parents: Angolan and Nigerian parents in the Netherlands. *Ethnic and Racial Studies*, 38(15), 2652–2671. <https://doi.org/10.1080/01419870.2015.1037783>
- Marchand, A., Bilodeau, J., Demers, A., Beaugard, N., Durand, P., & Haines, V. Y. (2016). Gendered depression: Vulnerability or exposure to work and family stressors? *Social Science & Medicine*, 166, 160–168. <https://doi.org/10.1016/j.socscimed.2016.08.021>
- Mazzucato, V., Dito, B. bushie, Grassi, M., & Vivet, J. (2017). Transnational parenting and the well-being of Angolan migrant parents in Europe. *Global Networks*, 17(1), 89–110. <https://doi.org/10.1111/GLOB.12132>
- OECD. (2023). *Measuring Population Mental Health*. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/social-issues-migration-health/measuring-population-mental-health_5171eef8-en
- Suárez-Orozco, C., Kim, H. Y., & Bang, H. J. (2011). I Felt Like My Heart Was Staying Behind: Psychological Implications of Family Separations & Reunifications for Immigrant Youth. *Journal of Adolescent Research*, 26(2), 222–257. <https://doi.org/10.1177/0743558410376830>
- White, A., Dito, B. B., Veale, A., & Mazzucato, V. (2019). Transnational migration, health and well-being: Nigerian parents in Ireland and the Netherlands. *Comparative Migration Studies*, 7(1), 1–26. <https://doi.org/10.1186/s40878-019-0147-1>