Women's mental health in the perinatal period according to migrant status: the French representative ELFE birth cohort

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Abstract

Background

Mental health problems in the perinatal period are common. We examined associations between different categories of migrant status and region of origin in relation to mental health during pregnancy and at two months postpartum.

Methods

We analysed data from the French nationally representative ELFE birth cohort (n=17,988). Migrant status was divided into five categories: 'majority population', 'descendants with one migrant parent', 'descendants with two migrant parents', 'naturalised migrant ' and 'non-naturalised migrant women'. Multivariate logistic regression models were implemented to examine associations between migrant status and mental health outcomes: persistent psychological difficulties during pregnancy as well as mother's depression and poor self-reported health at two months postpartum.

Results

After adjusting for covariates, migrant status was not associated with psychological difficulties during pregnancy. Descendants of migrants had comparable mental health to the majority population. Non-naturalised migrant women were more likely to experience depression (OR= 1.66, 95%CI:1.27,2.20) and poor self-reported health (OR=1.45, 95%CI:1.06,1.98) during the postpartum period. The region of origin was associated with postpartum health independently of migrant status, such that women from Africa and Turkey were most likely to have depression or poor self-rated health.

Conclusion

First, but not second, generation migrant women appear to have high levels of mental health difficulties during the postpartum period. Women from North Africa, Sub-Saharan Africa, and Turkey have higher levels of distress than those from other regions. In particular, non-naturalised migrant appear to be a vulnerable group; they may disproportionately face stressors that increase their risk for postpartum depressive symptoms.

Keywords

Migrant status, women, second generation migrants, postpartum depression, mental health

Introduction

The perinatal period is fraught with socio-emotional, practical and hormonal changes and challenges that make women susceptible to mental health problems: approximately 20% experience depression in the antenatal period or in three months following childbirth.(1–3) Maternal mental health in the perinatal period has important consequences for women and their children; therefore it is essential to understand the associated risk and protective factors.

In western countries, migrant women or those who descend from migrant parents are generally more prone to poor mental health than the majority population,(4) or those who stay in the country of origin.(5) A recent meta-analysis reported that migrant women are two times more likely to experience depressive symptoms after giving birth than non-migrant women.(6) However this review included little data from European countries and was limited by the lack of a clear and standardised definition of migrant status. Indeed, in most studies migrant status is conceptualised as a binary variable (foreign born vs. native born or White vs. ethnic minority), and neither second generation migrants nor geographic origins are accounted for.(7,8) This is problematic as migrant communities in Europe are diverse. Across European countries, there is also heterogeneity in the policies and services available to migrants, as well as their level of exposure to racism and discrimination.(9,10)

In France, in 2014, 11% of the population had at least one migrant parent (born not in France and non-French),(11) with 13.3% of new-borns having a migrant

mother.(12) Also, approximately 9% of residents of France are migrant, among them about 37% were born in Europe and 44% in Sub-Saharan or North Africa.(13)

Mental health problems in the perinatal period among migrant women may be explained by socio-economic factors,(14) but also an impaired adaptation to the surrounding environment.(15,16) However, this susceptibility is probably different between first and second generation migrants.(17) Further, mental health among women of migrant descent (second generation) could differ depending on whether they have one or two migrant parents,(18) as well as their region of origin. The same applies to first generation migrants; there could be differences in coping with the challenges of the perinatal period as well as associated mental health problems between naturalised and non-naturalised women. To our knowledge, these differences have not been adequately examined.

In this study, we examine whether mental health during the perinatal period differs according to women's migrant status. Thus we studied the association between migrant status, region of origin and mental health indicators during pregnancy and at 2 months postpartum, adjusting for socio-demographic and economic characteristics, using data from the French nationally representative ELFE birth cohort study.

Methods

Study design

ELFE (Etude Longitudinale Française depuis l'Enfance) is an ongoing prospective, longitudinal nationally representative French study (www.elfe-france.fr).(19)

Participants

A total of 17,988 mothers and their infants born in 2011 (n=18,275) were initially recruited in a representative random sample of 320 maternity wards throughout metropolitan France on a number of pre-selected days throughout the year (four waves: April; June-July; September-October; November-December). To be included, women had to be at least 18 years of age, plan on staying in metropolitan France for the following 3 years, and be capable of giving informed consent in one of the study languages (French, English, Arabic, and Turkish). Also, only single or twin births, born at or after 33 weeks gestation, were included.

Data sources

At birth, eligible mothers were interviewed by midwifes via face-to-face interviews at the maternity ward of delivery. Additionally, study participants completed a self-reported questionnaire (n=17,988). The second stage of data collection took place about two months after the child's birth, through telephone interviews with the mother with a response rate of 91% (n=16,280) and the father, if the mother participated (n=12,511).

Indicators of mental health

We considered three different outcome variables:

- at the time of the child's birth, women were asked whether they experienced persistent psychological difficulties during pregnancy (yes vs. no).

- at two months post-partum, depression was measured by the Edinburgh Postnatal Depression Scale (yes (EPDS≥12) vs. no),(20) and women reported on their "general

health" (average/bad vs. good/very good). Self-reported health has been known to capture not only physical, but also mental health and social well-being.(21)

Mother's migration status

At study enrolment, women were asked about their nationality and country of birth, as well as those of their partner. At two months post-partum, women reported their parents' country of birth. This information was used to identify women's 'migrant status' according to five categories: 'majority population' (includes foreign-born persons whose parents were French at birth), 'descendants (second generation) with one migrant parent', 'descendants with two migrant parents', 'naturalised migrant women ' (first generation; women born non-French outside of France who acquired French citizenship) and 'non-naturalised migrant women' (women non-French outside of France and who did not have French nationality at the time of data collection).

Region of origin

Participants' region of origin was defined as a) own region of birth for descendants of migrants, and b) parents' region of birth for migrants (North Africa and Turkey, Sub-Saharan Africa, non-EU Eastern Europe and Asia, other vs. France/ EU).

Other covariates

Covariates included known risk factors of women's mental health difficulties and characteristics related to migrant status:

- demographic characteristics: maternity unit of delivery, maternal age (≤ 30 years vs. > 30 years), educational level (< high school, high school vs. > high school degree),

overall number of children (two or more vs. one), residential area (Paris Basin, North, East, West, South-West, Centre-East, others, vs. Paris region), recruitment wave (April, June-July, September-October vs November-December);

- socio-economic characteristics: highest household occupational grade (none, low [e.g. clerk, manual worker], intermediate [e.g. mid-level manager, technician], vs. high [e.g. manager]), maternal employment status at the time of pregnancy (unemployed, out of the job market vs. employed);

- partner characteristics: employment status at the time of pregnancy (unemployed, out of the job market vs. employed), sufficient partner support during pregnancy (not living with a partner, no, vs. yes), nationality (naturalized, migrant vs. native French), and region of origin (North Africa and Turkey, Sub-Saharan Africa, Eastern Europe and Asia, other vs. France/ European Union);

- pregnancy and child characteristics: pregnancy timing (anticipated vs. not anticipated), tobacco use during pregnancy (smoker, former smoker who quit during pregnancy, vs. non-smoker), unplanned caesarean section (yes, vs. no - including planned caesarean section, vaginal and instrumental extraction), child gestational age (<37 weeks vs ≥37 weeks), child sex (girl vs boy), and feeding method at 2 months (formula vs breast feeding (including exclusive and partial breastfeeding).-

Statistical Analysis

Missing data on covariates were imputed using multiple imputations by chained equations under fully conditional specification and assuming that data were missing

at random.(22) The first imputation procedure included all the outcome variables and covariates measured at baseline as well as the maternity unit. The second imputation procedure included all outcome variables measured at 2 months as well as all covariates and the maternity unit. Ten imputed datasets were created for each imputation procedure. A variable that indicated missing values for each outcome was created before imputation, and served to select only complete outcome observations for each subsequent analysis on imputed datasets.

Logistic regression models were implemented to identify potential confounders among the list of previously described covariates. Variables associated with these outcomes in bivariate analyses ($p<0.20$) were included in the multivariate logistic regression models. These models examined associations between migrant status and the region of origin and each study outcome while adjusting for identified confounders, with a random intercept corresponding to the maternity unit of delivery. Interactions between migrant status and region of origin were examined separately for each study outcome. The majority group constituted the reference group in all analyses.

Analyses were adjusted for all the listed covariates, except in the analysis of psychological difficulties during pregnancy where covariates measured subsequently (ex. unplanned caesarean, child sex, gestational age and child feeding method) were not included.

All analyses were performed with SAS, version 9.4. Multiple imputations were implemented using the 'PROC MI' procedure with the FCS (fully conditional specification) statement. Bivariate and multivariate analyses were conducted separately for each imputed dataset and the results (OR, CI 95%) were pooled using the 'PROC MIANALYZE' procedure.

Results

Table 1 presents descriptive statistics of women included in the analysis.

Out of 17,988 mothers included in the study, 68.4% were in the "majority population" group, 5.8% were descendants with one migrant parent (n=1,046), 5.3% were descendants with two migrant parents (n=954), 3.6% were naturalised (n=654), and 8.5% were non-French citizens (n=1,525). Data on migrant status was missing for 8.4% (n=1,515) of the participants. More than half of descendants originated from another country in the European Union (53.4%) and 63.1% of migrants were from North Africa and Turkey.

In bivariate analyses, migrant status and the region of origin were associated with all study outcomes (supplementary table s2); however health outcomes among descendants with one migrant parent were comparable to those of members of the majority population. Additionally, we found a gradient of postpartum depression and self-reported health 2 months postpartum: non-naturalised migrants had worse health than naturalised migrants, who in turn had worse health than descendants with two migrant parents.

After adjusting for confounding factors (**Table 2**), particularly socio-economic variables and mother's age, migrant status and region of origin were no longer associated with persistent psychological difficulties during pregnancy.

Nevertheless, the association between migrant status and post-partum depression and self-rated health subsisted. In particular, non-naturalised migrant women were more likely to have post-partum depression (OR= 1.66, 95% CI 1.27- 2.18) and more likely to report being in poor health (OR=1.45, 95% CI 1.06- 1.98) 2 months after giving birth compared to the majority population. The region of origin was also associated with these 2 outcomes : women from North Africa and Turkey as well as 'other countries' were especially likely to be depressed; women from Sub-Saharan Africa and 'other countries' were especially likely to report poor health. There were no statistically significant interactions between migrant status and region of origin for the three mental health indicators.

Discussion

Key results

To our knowledge, this is the first European study that examines women's perinatal mental health in first and second-generation migrant women accounting for geographical region of origin. The present results show that after adjusting for multiple characteristics, only Non-French citizens display higher levels of postpartum depressive symptoms and poor perceived-health than the majority population. Additionally, the region of origin is also associated with postpartum depression (Turkey, North and Sub-Saharan Africa) and poor self-reported health (North Africa, Turkey, Other regions). Overall, women who descend from migrants have similar profiles to those who were born in France of French-citizen parents; however foreign women may require special attention from primary care and mental health professionals during pregnancy and the period that follows.

Interpretation

The finding that migrant women have worse self-reported health and higher levels of postpartum depression than native women is consistent with findings from other studies.(6) Compared to the general population, migrant women disproportionately face stressors such as poor social support, low socioeconomic position, and/or difficulties in adaptation to the host culture that could increase their risk of postpartum depressive symptoms.(23) In our study, neither naturalised nor second-generation migrant women were at increased risk of postpartum depression or poor perceived health, unlike non-French citizens, which could be due to differences in

adaptation and social inclusion between these two groups. However, we did find an association between women's region of origin and mental health outcomes, independently of migrant status, which could reflect stressors not related to cultural and societal adaptation such as social adversity and discrimination. A recent review hypothesised that the reason migrants' life satisfaction in European countries is low is because of discrimination, which does not seem to improve across time or generation.(9) In another study, perceived discrimination among pregnant low-income women was associated with depressive symptoms independently of potential confounders, including ethnicity.(24)

In our study perceived persistent psychological difficulties during pregnancy were not associated with migrant status or the region of origin. It is possible that this binary indicator could not discriminate increased mental health problems persistently experienced by women with a migrant origin (4) from psychological difficulties directly linked to perinatal factors such as a mistimed pregnancy or the lack of partner support. In fact, these two factors had the strongest association with perceived persistent psychological difficulties in the antenatal period. Also, migrant women, especially those who were not French citizens, were more likely to be single mothers and to report a mistimed pregnancy compared to the majority population, therefore these factors possibly "mediate" the association between migrant status and psychological difficulties observed in our bivariate analysis.

Limitations

A limitation of our study is the lack of data on women's integration, acculturation, and perceived discrimination, even though, among migrants 'citizenship' (or naturalisation) can be considered as an adequate proxy for acculturation.(10) This is especially the case as naturalised women in our study lived in France an average of 8 years more than non-naturalised women (17.2 (sd=8) vs 9.3 (sd=8) and are therefore likely to have arrived at a much earlier age, which is related with the degree of acculturation. An alternative proxy would be the languages spoken at home.(25) Approximately 7% of women participating in the ELFE cohort reported using at least 2 languages in their household, but since most migrants in France and in the study originate from French-speaking countries, language may not be a precise proxy for acculturation in this setting. Another limitation is attrition at two months, which may have resulted in an underestimation of the association between migrant status and mental health problems, if most vulnerable women were not included in our follow-up. Nevertheless the associations we report were statistically significant even after adjusting for multiple socio-demographic, economic and partner characteristics.

Our study's main strengths are: a) the use of data from a large nationally representative cohort of women and children, b) measurement of multiple covariates, and c) the examination of mental health across different categories of migrant status and region of origin.

Conclusion

Migrant women tend to have comparable mental health difficulties in the perinatal period as women who are not migrant; however, they also face some specific difficulties. Women of North African, Sub-Saharan or Turkish descent are more likely to report post-partum depression, as are women who do not hold French citizenship. Further research should compare women's perinatal health outcomes in different European countries, which might help distinguish the effects of migration itself, from those of socioeconomic circumstances and patterns of integration in the host country.

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Conflicts of interest

None declared

Keypoints

- Mental health problems are common in the perinatal period, especially among migrant women, as compared to those who are non-migrant.
- Descendants of migrants and naturalised migrants have comparable mental health to the majority population of France.
- Non-naturalised migrant women are especially likely to have postpartum depression and poor self-reported health.
- Our findings highlight the need to screen for women's mental health difficulties the perinatal period and develop targeted psychological and social interventions for non-naturalised migrant women who need such support.

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Table 1: Descriptive characteristics of women of the ELFE cohort (n=17,988)

Demographic characteristics (n. %*)			Health characteristics (n. %*)		
Age	<30 years	7724 (42.9%)	**Persistent psychological difficulties**	Yes	2222 (12.4%)
	≥30 years	10134 (56.3%)		No	15524 (86.3%)
Educational level	< High school degree	3415 (19.0%)	**Postpartum depression**	No	13630 (75.8%)
	High school	3760 (20.9%)		Yes	1903 (10.6%)
	> High school degree	10757 (59.8%)	**Self-reported health at 2 months postpartum**	Good	14197 (78.9%)
Number of children	One	8327 (46.3%)		Bad	1345 (7.5%)
	≥Two	9661 (53.7%)	**Pregnancy and child characteristics (n. %*)**		
Residential area	Paris	3184 (17.7%)	**Mistimed pregnancy**	Yes	2156 (12.0%)
	Paris region	2699 (15.0%)		No	15555 (86.5%)
	North-Pas de Calais	1411 (7.8%)	**Smoking during pregnancy**	Non-smokers	10220 (56.8%)
	East	1592 (8.9%)		Former smoker	4020 (22.3%)
	West	2282 (12.7%)		Smoker	3506 (19.5%)
	South-West	1300 (7.2%)	**Unplanned caesarean**	Yes	1869 (10.4%)

	Centre-East	1784 (9.9%)		No	15597 (86.7%)
	Other	1875 (10.4%)	**Gestational age**	<37 weeks	873 (4.9%)
				>=37 weeks	16789 (93.3%)
Socioeconomic characteristics (n. %*)			**Child's sex**	Girl	8633 (48.0%)
Occupational grade	High	1806 (10.0%)		Boy	9148 (50.9%)
	Intermediate	3371 (18.7%)	**Child feeding method at 2 months**	Breastfeeding (exclusive or partial)	7490 (41.6%)
	Low	10842 (60.3%)		Formula	8271 (46.0%)
	No occupation	1969 (10.9%)			
Employment status	Employed	13929 (77.4%)	**Recruitment wave**	April	2745 (15.3%)
	Unemployed	1017 (5.7%)		June-July	4533 (25.2%)
				Sep-Oct	5120 (28.5%)
				Nov-Dec	5590 (31.1%)

*Missing values are included in the percentage calculation

Table 2: **Associations between migrant status and region of origin with mental health in the perinatal period (multivariate logistic regression models, OR; 95% CI): the ELFE birth cohort study (n=17,988).**

		Psychological difficulties during pregnancy ORa (95%CI)	Poor perceived health, 2 months postpartum ORa (95%CI)	Post-partum depression, 2 months postpartum ORa (95%CI)
Migrant Status (ref=majority population)	Descendant, one migrant parent	1.14 (0.92- 1.41)	1.08 (0.85- 1.38)	0.99 (0.80- 1.23)
	Descendant, two migrant parents	1.05 (0.79- 1.41)	1.26 (0.93- 1.72)	0.93 (0.70- 1.24)
	Naturalised	1.21 (0.88- 1.67)	1.30 (0.88- 1.90)	1.11 (0.80- 1.55)
	Non-naturalised	1.08 (0.82- 1.42)	1.45 (1.06- 1.98)	1.66 (1.27- 2.18)
Region of Origin (ref=France/EU)	Eastern Europe, Asia	0.82 (0.52- 1.30)	1.23 (0.74- 2.04)	1.36 (0.89- 2.09)
	North Africa, Turkey	1.20 (0.91- 1.59)	1.40 (1.02- 1.94)	1.53 (1.14- 2.04)
	Sub-Saharan Africa	1.16 (0.81- 1.66)	1.34 (0.88- 2.02)	1.52 (1.06- 2.18)
	Others/ Non declared	1.06 (0.70- 1.61)	1.67 (1.06- 2.64)	1.46 (0.97- 2.20)
Mother's age (ref≥30 years)	<30 years	0.76 (0.69- 0.85)	0.63 (0.56- 0.72)	0.81 (0.72- 0.90)
Educational level (ref= >bac)	< High school	1.01 (0.88- 1.16)	1.39 (1.18- 1.64)	1.19 (1.03- 1.38)
	High school	1.07 (0.94- 1.21)	1.09 (0.93- 1.28)	1.13 (0.99- 1.30)
Number of children (ref= ≥2)	First	0.99 (0.90- 1.10)	0.98 (0.86- 1.11)	0.97 (0.87- 1.08)
Residential area (ref=Ile de France)	Paris region	1.20 (1.00- 1.44)	0.96 (0.79- 1.17)	0.94 (0.79- 1.11)
	North-Pas de Calais	1.08 (0.85- 1.37)	0.94 (0.73- 1.20)	1.00 (0.81- 1.24)

	East	1.09 (0.87- 1.36)	0.95 (0.75- 1.19)	0.94 (0.77- 1.15)
	West	1.16 (0.94- 1.42)	0.92 (0.74- 1.14)	0.90 (0.74- 1.09)
	South-West	1.25 (1.00- 1.57)	0.93 (0.72- 1.19)	0.89 (0.71- 1.11)
	Centre-East	1.26 (1.02- 1.55)	1.00 (0.80- 1.25)	1.13 (0.93- 1.37)
	Others	1.12 (0.92- 1.36)	1.00 (0.81- 1.24)	0.83 (0.68- 1.01)
Mistimed pregnancy (ref=no)	Yes	1.99 (1.76- 2.24)	1.39 (1.18- 1.63)	1.42 (1.24- 1.63)
Occupational grade (ref=high)	Intermediate	1.23 (1.01- 1.48)	1.16 (0.90- 1.50)	1.16 (0.94- 1.43)
	Low professional	1.11 (0.92- 1.32)	1.45 (1.15- 1.84)	1.37 (1.12- 1.66)
	No occupation	0.96 (0.73- 1.26)	1.42 (1.01- 2.00)	1.40 (1.05- 1.87)
Mother's employment status (ref=working)	Out of the job market	0.84 (0.72- 0.98)	1.36 (1.14- 1.62)	1.17 (1.00- 1.36)
	Unemployed	1.05 (0.87- 1.27)	1.37 (1.09- 1.72)	1.17 (0.95- 1.45)
Father's employment status (ref=working)	Out of the job market	1.61 (1.28- 2.03)	0.95 (0.69- 1.31)	1.12 (0.86- 1.46)
	Unemployed	1.21 (0.98- 1.50)	1.12 (0.86- 1.44)	1.01 (0.80- 1.28)
Social support during pregnancy (ref=well surrounded)	No/ insufficient	2.20 (1.90- 2.56)	2.06 (1.73- 2.45)	2.50 (2.16- 2.90)
	No partner	1.63 (1.33- 2.00)	1.26 (0.98- 1.62)	1.91 (1.55- 2.36)
Tobacco use (ref=non-smoker)	Former smoker	1.21 (1.08- 1.37)	1.09 (0.93- 1.26)	1.12 (0.99- 1.27)
	Smoker	1.38 (1.22- 1.55)	1.14 (0.97- 1.33)	1.05 (0.91- 1.20)
Partner migrant status (ref=majority population)	Naturalized	1.04 (0.73- 1.47)	0.89 (0.58- 1.36)	0.81 (0.55- 1.17)
	Migrant	1.14 (0.85- 1.51)	1.24 (0.87- 1.77)	0.92 (0.67- 1.26)
Region of Origin of the partner (ref=France/EU)	Eastern Europe, Asia	0.92 (0.57- 1.49)	1.04 (0.58- 1.85)	1.39 (0.85- 2.26)
	North Africa, Tukey	0.95 (0.68- 1.33)	1.02 (0.67- 1.55)	1.26 (0.87- 1.82)
	Sub-Saharan Africa	0.97 (0.66- 1.43)	1.29 (0.82- 2.03)	1.25 (0.84- 1.87)

	Other/ Non declared	0.94 (0.61- 1.45)	1.05 (0.62- 1.78)	1.18 (0.74- 1.88)
Recruitment wave (ref=November - December)	April	1.31 (1.14- 1.51)	0.99 (0.83- 1.18)	1.02 (0.88- 1.20)
	June-July	1.19 (1.05- 1.34)	1.06 (0.91- 1.23)	1.03 (0.90- 1.18)
	September-October	1.07 (0.95- 1.21)	1.00 (0.86- 1.16)	1.20 (1.06- 1.37)
Unplanned caesarean Ref=no	Yes		1.23 (1.03-1.47)	1.02 (0.87-1.20)
Gestational age (ref≥37 weeks)	<37 weeks		1.54 (1.23- 1.93)	1.24 (1.00- 1.54)
Child's sex(ref =boy)	Girl		0.85 (0.75- 0.95)	0.80 (0.73- 0.89)
Child feeding method at 2 months (ref=Breast feeding)	Formula		1.45 (1.28- 1.64)	1.02 (0.92- 1.13)