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# Comparative study of changes in maternal and perinatal morbidity inequalities among migrant and native women over time, between 2008 and 2014 in France

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## ► To cite this version:

Maxime Eslier, Rémy Morello, Elie Azria, Michel Dreyfus. Comparative study of changes in maternal and perinatal morbidity inequalities among migrant and native women over time, between 2008 and 2014 in France. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 2020, 253, pp.76-82. 10.1016/j.ejogrb.2020.07.047 . hal-03268402

**HAL Id: hal-03268402**

**<https://hal.inrae.fr/hal-03268402>**

Submitted on 22 Aug 2022

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<b>Variables</b>	
All cases	10
Age, median (range)	62 (50-76)
BMI (Kg/m <sup>2</sup> ), median (range)	25 (23-30)
Parity, median (range)	2 (1-4)
Ba (cm), median (range)	-1 (-3 to 0)
C (cm), median (range)	+4 (0 to +5)
Bp (cm), median (range)	-2 (-3 to -2)
Prolapse distribution	
Apical alone, n (%)	4 (40)
Combined apical and anterior, N (%)	6 (60)
Apical POP Q* stage, N (%)	
II	2 (20)
III	8 (80)
Anterior POP Q* stage, N (%)	
II	6 (100)

\*POP-Q: Pelvic Organ Prolapse Quantification system scores.

**Table 1. Demographic and perioperative data**

**Table 1.** Characteristics of women who gave birth in 2008 according to maternal birth place

Maternal birth place (N)		France (2766)	Europe excluding France (40)	North Africa (84)	Sub- Saharan Africa (74)	Other (74)	p
SOCIO – ECONOMIC STATUS	Age (years)	29.1	29.3	30.7	28.1	28.9	<b>0.002</b>
	Socioprofessional category (%)						<b>&lt;0.001</b>
	Craftsmen, tradesmen and general managers	2.1	0	0	1.4	0	
	Managerial staff or higher intellectual professions	11.5	15	2.4	0	4	
	Middle-level professions	30.1	20	8.3	8	12.2	
	Employees	27.2	12.5	16.7	6.8	9.5	
	Manual	<b>5.2</b>	<b>7.5</b>	<b>1.2</b>	<b>2.7</b>	<b>2.7</b>	
	Unemployed workers	<b>23.9</b>	<b>45</b>	<b>71.4</b>	<b>81.1</b>	<b>71.6</b>	
	Social welfare coverage (%)						
	Standard health insurance	96.1	87.5	89.2	78.4	90.4	<b>&lt;0.001</b>
	Universal health coverage (CMU)	2.6	2.5	6	8	5.4	<b>0.002</b>
	Supplementary CMU	1.3	5.0	2.4	2.7	1.4	0.09
	State medical assistance (AME)	0	0	2.4	9.5	1.4	<b>&lt;0.001</b>
None	0	5	0	1.4	1.4	<b>&lt;0.001</b>	
MEDICAL HISTORY	Smoking during pregnancy (%)	26.6	12.5	4.8	2.7	9.5	<b>&lt;0.001</b>
	Body mass index	23.4	22.6	23.9	24.1	23.6	<b>0.006</b>
	High blood pressure (%)	1.3	0	0	1.4	1.4	NS
	Pre-existing diabetes (%)	0.3	2.5	1.2	2.7	0	<b>0.013</b>
	Uterine Myomas (%)	0.7	0	0	4.1	2.7	<b>0.02</b>
OBSTETRICAL HISTORY	Parity	0.9	0.6	1.2	1.4	0.9	<b>0.008</b>
	Primiparous (%)	45.4	55	36.9	39.2	45.9	NS
	Multiparity with scarred uterus (%)	9.3	2.5	15.5	12.2	17.6	<b>0.02</b>
	Multiparity without scarred uterus (%)	45.3	42.5	47.6	48.6	36.5	NS
	Postpartum hemorrhage (%)	5.1	2.5	2.4	4.1	2.7	NS
	Gestational diabetes (%)	2.1	0	7.1	5.4	2.7	<b>0.02</b>
Hypertensive diseases (%)	2.3	2.5	0	2.7	1.4	NS	

NS, Not Significant

**Table 2.** Characteristics of women who gave birth in 2014 according to maternal birth place

Maternal birth place (N)		France (2616)	Europe excluding France (67)	North Africa (105)	Sub- Saharan Africa (128)	Other (85)	p
SOCIO – ECONOMIC STATUS	Age (years)	29.4	30.5	30.9	29.6	29.5	<b>0.002</b>
	Socioprofessional category (%)						<b>&lt;0.001</b>
	Craftsmen, tradesmen and general managers	2.4	3	2.9	0.8	7	
	Managerial staff or higher intellectual professions	13	22.4	2.9	5.5	10.6	
	Middle-level professions	32.4	20.9	6.7	7	9.4	
	Employees	25.1	16.4	18	11.7	9.4	
	Manual	<b>5.7</b>	<b>1.5</b>	<b>1.9</b>	<b>4.7</b>	<b>1.2</b>	
	Unemployed workers	<b>21.4</b>	<b>35.8</b>	<b>67.6</b>	<b>70.3</b>	<b>62.4</b>	
	Social welfare coverage (%)						
	Standard health insurance	87.2	77.6	64.6	41.4	68.2	<b>&lt;0.001</b>
	Universal health coverage (CMU)	1.1	3.0	4.8	2.3	1.2	<b>0.005</b>
	Supplementary CMU	11.4	14.9	24.8	42.2	25.9	<b>&lt;0.001</b>
	State medical assistance (AME)	0	1.5	2.9	14.1	4.7	<b>&lt;0.001</b>
None	0.3	3	2.9	0	0	<b>&lt;0.001</b>	
MEDICAL HISTORY	Smoking during pregnancy (%)	24.0	16.4	2.9	3.1	8.2	<b>&lt;0.001</b>
	Body mass index	24.0	23.1	24.1	25.8	23.7	<b>0.006</b>
	High blood pressure (%)	0.9	0	1	1.6	1.2	NS
	Pre-existing diabetes (%)	0.8	0	1.9	1.6	1.2	NS
	Uterine Myomas (%)	0.4	1.5	0	5.5	0	<b>&lt;0.001</b>
OBSTETRICAL HISTORY	Parity	0.8	0.8	1.1	1.0	1.0	<b>0.02</b>
	Primiparous (%)	48.2	52.2	44.8	37.5	37.6	<b>0.04</b>
	Multiparity with scarred uterus (%)	11.2	14.9	11.4	17.2	14.1	NS
	Multiparity without scarred uterus (%)	40.7	32.8	43.8	45.3	48.2	NS
	Postpartum hemorrhage (%)	4.7	7.5	3.8	2.3	0	NS
	Gestational diabetes (%)	2.9	1.5	6.7	3.1	5.9	NS
Hypertensive diseases (%)	2.5	4.5	3.8	7	1.2	<b>0.03</b>	

NS, Not Significant

**Table 3.** Comparison of maternal and perinatal morbidity among women who gave birth in 2008 or 2014 according to maternal birth place

Maternal birth place		France	Europe excluding France	North Africa	Sub-Saharan Africa	Other	
<b>2008</b>	N	2766	40	84	74	74	p
<b>MATERNAL MORBIDITY (%)</b>	Preeclampsia	1.5	0	0	1.3	1.3	NS
	Severe preeclampsia	1.4	0	1.2	1.4	0	NS
	Eclampsia	0	0	0	0	0	NS
	HELLP Syndrome	0.5	0	0	1.4	0	NS
	Placenta abruption	0.2	0	0	0	0	NS
	Gestational diabetes	3.9	10	8.3	6.8	8.1	<b>0,01</b>
	Pregnancy cholestasis	0.6	2.5	1.2	0	0	NS
	Placenta previa	0.6	0	2.4	0	1.4	NS
	Uterine rupture	0.1	0	0	0	0	NS
	Post-partum hemorrhage	6.9	7.5	7.1	6.8	6.8	NS
	Severe post-partum hemorrhage	1.6	0	1.2	5.4	1.4	NS
	Post-partum infections	0.1	0	0	0	0	NS
<b>PERINATAL MORBIDITY (%)</b>	Severe prematurity	3.2	5	0	0	2.7	NS
	Birthweight < 3 <sup>rd</sup> percentile	2	0	1.2	2.7	2.7	NS
	Macrosomia	11.7	20	20.2	14.9	9.5	NS
	5-minute Apgar score < 7	1.0	2.5	1.2	1.4	0	NS
	Umbilical cord pH <7.10	0.4	2.5	0	1.4	0	NS
	Fetal death	0.9	0	0	0	1.4	NS
<b>2014</b>	N	2616	67	105	128	85	P
<b>MATERNAL MORBIDITY (%)</b>	Preeclampsia	1.4	3.0	1.9	2.3	0	NS
	Severe preeclampsia	1	1.5	1	1.6	1.2	NS
	Eclampsia	0	0	0	0	0	NS
	HELLP Syndrome	0.3	0	0	0	0	NS
	Placenta abruption	0	0	1	0	0	NS
	Gestational diabetes	11.6	11.9	19	13.3	14.1	NS
	Pregnancy cholestasis	1	3	1	0.8	0	NS
	Placenta previa	0.6	0	1	0	0	NS
	Uterine rupture	0.2	0	0	0	0	NS
	Post-partum hemorrhage	9.3	13.4	9.5	10.9	4.7	NS
	Severe post-partum hemorrhage	3.4	6	1.9	5.5	3.5	NS
	Post-partum infections	0.1	0	0	0	0	NS
<b>PERINATAL MORBIDITY (%)</b>	Severe prematurity	2.9	4.5	5.7	3.1	0	NS
	Birthweight < 3 <sup>rd</sup> percentile	1.5	1.5	1	1.6	0	NS
	Macrosomia	11.2	9	12.4	8.6	9.4	NS
	5-minute Apgar score < 7	1.6	0	1.9	3.1	1.2	NS
	Umbilical cord pH <7.10	0.5	0	0	3.1	0	NS
	Fetal death	1.3	1.5	2.9	0	0	NS

NS, Not Significant

**Table 4.** Association between maternal birth place and maternal morbidity among women who gave birth in 2008 or 2014

	p	OR	CI 95%	aOR *	CI 95%
<b>Severe post-partum hemorrhage</b>					
Year of delivery 2014 (Ref : 2008)	< 0.001	2.2	1.5-3.0	2.1	1.5-3.0
Maternal birth place					
Europe excluding France (Ref : France)	0.5	1.5	0.6-4.2	1.4	0.5-3.8
North Africa	0.4	0.6	0.2-2.0	0.6	0.2-1.9
Sub-Saharan Africa	0.03	2.3	1.2-4.3	2.1	1.1-3.9
Other	1.0	1.0	0.4-2.8	1.0	0.4-2.7
<b>Gestational diabetes</b>					
Year of delivery 2014 (Ref : 2008)	< 0.001	3.1	2.5-3.8	3.0	2.5-3.7
Maternal birth place					
Europe excluding France (Ref : France)	0.3	1.5	0.8-2.8	1.3	0.7-2.5
North Africa	0.003	2.0	1.3-3.1	1.9	1.2-2.9
Sub-Saharan Africa	0.3	1.5	0.9-2.3	1.3	0.8-2.0
Other	0.1	1.5	0.9-2.6	1.5	0.9-2.5

OR, odds ratio; aOR, adjusted odds ratio; CI, Confidence interval.

\* adjusted for the year of delivery when comparing the maternal birth place and adjusted for the maternal birth place when comparing the year of delivery

**Table 5.** Comparison of characteristics among migrant women who gave birth in 2008 to those who gave birth in 2014

Year of delivery		2008	2014	p
		N = 272	N = 385	
SOCIO-ECONOMIC STATUS	Age (years)	29.3	30.1	NS
	Socioprofessional category (%)			<b>0.02</b>
	Craftsmen, tradesmen and general managers	0.4	3.1	
	Managerial staff or higher intellectual professions	4.0	8.8	
	Middle-level professions	11.0	9.9	
	Employees	11.4	13.8	
	Manual	<b>2.9</b>	<b>2.6</b>	
	Unemployed workers	<b>70.3</b>	<b>61.8</b>	
	Social welfare coverage (%)			<b>&lt;0.001</b>
	Standard health insurance	86.3	59.9	<b>0.07</b>
	Universal health coverage (CMU)	5.9	2.9	<b>&lt;0.001</b>
	Supplementary CMU	2.6	29.1	NS
	State medical assistance (AME)	3.7	6.8	NS
None	1.5	1.3		
MEDICAL HISTORY	Smoking during pregnancy (%)	6.6	6.5	NS
	Body mass index	23.7	24.4	<b>0.04</b>
	High blood pressure (%)	0.7	1.0	NS
	Pre-existing diabetes (%)	1.5	1.3	NS
	Uterine Myomas (%)	1.8	2.1	NS
OBSTETRICAL HISTORY	Parity	1.1	1.0	NS
	Primiparous (%)	42.6	42.1	NS
	Multiparity with scarred uterus (%)	13.2	14.5	NS
	Multiparity without scarred uterus (%)	44.1	43.4	NS
	Postpartum hemorrhage (%)	2.9	3.1	NS
	Gestational diabetes (%)	4.4	4.4	NS
Hypertensive diseases (%)	1.5	4.4	<b>0.04</b>	

NS, Not Significant

Table 6. Comparison of maternal and perinatal morbidity among migrant women who gave birth in 2008 to those who gave birth in 2014

Year of delivery		2008	2014	P
		N = 272	N = 385	
MATERNAL MORBIDITY (%)	Preeclampsia	0.7	1.8	NS
	Severe preeclampsia	0.7	1.3	NS
	Eclampsia	0	0	NS
	HELLP Syndrome	0.4	0	NS
	Placenta abruption	0	0.3	NS
	Gestational diabetes	8.1	14.8	<b>0.01</b>
	Pregnancy cholestasis	0.7	1.0	NS
	Placenta previa	1.1	0.3	NS
	Uterine rupture	0	0	NS
	Post-partum hemorrhage	7.0	9.6	NS
	Severe post-partum hemorrhage	2.2	4.2	NS
	Post-partum infections	0	0	NS
	PERINATAL MORBIDITY (%)	Severe prematurity	2.6	3.4
Birthweight < 3 <sup>rd</sup> percentile		1.8	1.0	NS
Macrosomia		15.8	9.9	<b>0.03</b>
5-minute Apgar score < 7		1.1	1.8	NS
Umbilical cord pH <7.10		0.7	1.0	NS
Fetal death		0.4	1.0	NS

NS, Not Significant