DETERMINANTS OF FEMALE STERILIZATION IN BRAZIL, 2001–2006

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OBJECTIVE

- ✓ This study aims to investigate the determinants of female sterilization in Brazil.
- ✓ The analysis is innovative because it adds time of exposure to the risk of sterilization into survival models.

DATA AND METHODS

- ✓ Data is from the 2006 Brazilian National Survey on Demography and Health of Women and Children (PNDS).
- ✓ Models have controls for postpartum duration, age at delivery, parity at delivery, place of delivery, region of residence, color/race, years of schooling, frequency to religious activities, and religion at the time of interview.

Distribution of pregnancies (births), women (cases), months of exposure, and events of sterilization by variables of interest, Brazil, 2001–2006

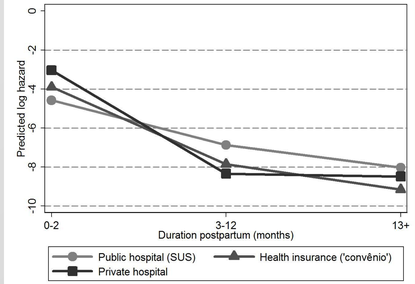
Variables	Pregnancies (births)	Women (cases)	Exposures (months)	Events (sterilization)
Sample size (n)	3,397	2,761	88,198	855
Postpartum duration (months)				
0–2	——	2,761	18,370	699
3–12	——	2,171	25,177	87
13+	——	1,760	44,651	69
Age at delivery (years)				
15–24	1,419	1,147	40,301	230
25–29	974	889	24,991	280
30–34	586	541	13,245	202
35–49	418	387	9,661	143
Parity at delivery				
2 children	1,681	1,681	46,556	327
3 children	889	889	21,863	288
4 children or more	827	649	19,779	240
Place of delivery				
Public hospital (SUS)	2,844	2,262	77,196	593
Health insurance (“convênio”)	287	263	7,170	95
Private hospital	266	258	3,832	167
Region of residence				
North	735	560	16,818	216
Northeast	639	505	16,402	158
Southeast	646	548	17,833	154
Central-West	676	576	20,243	123
South	701	572	16,902	204
Color/Race				
White	1,129	958	31,377	266
Black	340	264	8,873	76
Brown	1,754	1,402	43,093	473
Yellow	91	76	2,754	23
Indigenous	83	61	2,101	17
Years of schooling				
0–3	692	503	17,325	168
4–7	1,319	1,045	35,440	301
8–10	699	582	18,668	173
11+	687	631	16,765	213
Frequency to religion activities				
Never or don’t know	596	464	15,583	118
Less than once per month	773	660	20,409	199
One to three times per month	649	518	17,246	152
Once per week	772	627	19,603	209
More than once per week	607	492	15,357	177
Religion at the time of interview				
Catholics	2,185	1,777	56,537	545
Mainline protestants	416	337	10,740	107
Pentecostal protestants	408	332	10,642	111
Spiritualist, Afro-Brazilian, other or don’t know	113	98	2,993	36
No religion	275	217	7,286	56

RESULTS

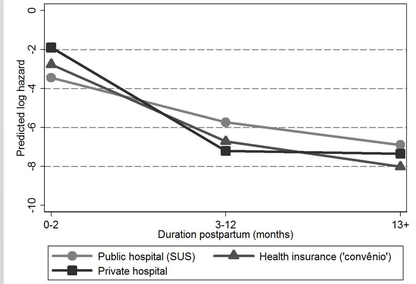
- ✓ The strongest probability that sterilization might occur was observed for women who gave birth at private hospitals or received support from a health insurance company, between zero and two months after childbirth.
- ✓ These results are an indication of a frustrated demand for female sterilization at public hospitals.
- ✓ Unlike previous studies, findings suggest color/race and years of schooling do not predict the risk of sterilization.

PREDICTED LOG HAZARD OF STERILIZATION FROM INTERACTIONS MODEL, BRAZILIAN SOUTHEAST

Age 15–24, 2 children



Age 25–29, 2 children



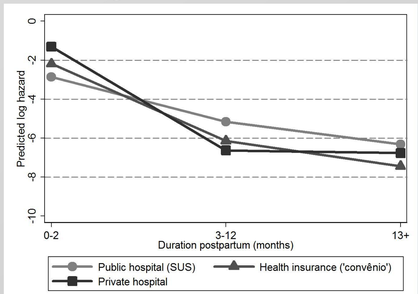
MAIN EFFECTS MODEL
Exponential of coefficients from hazard models to estimate the risk of sterilization, Brazil, 2001–2006 (n=7,930)

Variables	Main effects
Postpartum duration (months)	
0–2	ref.
3–12	0.095*** (0.011)
13+	0.042*** (0.005)
Age at delivery (years)	
15–24	ref.
25–29	2.029*** (0.191)
30–34	2.847*** (0.301)
35–49	3.288*** (0.389)
Parity at delivery	
2 children	ref.
3 children	1.677*** (0.141)
4 children or more	1.189 (0.126)
Place of delivery	
Public hospital (SUS)	0.195*** (0.020)
Health insurance (“convênio”)	0.361*** (0.048)
Private hospital	ref.
Region of residence	
North	1.235* (0.139)
Northeast	1.126 (0.132)
Southeast	ref.
South	0.765** (0.095)
Central-West	1.145 (0.127)

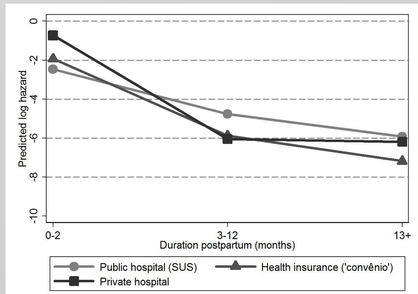
Variables	Main effects
Color/Race	
White	ref.
Black	1.186 (0.160)
Brown	1.190** (0.099)
Yellow	1.065 (0.234)
Indigenous	0.795 (0.203)
Years of schooling	
0–3	0.972 (0.097)
4–7	ref.
8–10	1.063 (0.104)
11+	0.886 (0.094)
Frequency to religion activities	
Never or don’t know	0.818 (0.101)
Less than once per month	ref.
One to three times per month	0.887 (0.097)
Once per week	1.020 (0.104)
More than once per week	1.087 (0.126)
Religion at the time of interview	
Catholics	ref.
Mainline protestants	1.024 (0.116)
Pentecostal protestants	0.948 (0.109)
Spiritualist, Afro-Brazilian, other or don’t know	1.150 (0.205)
No religion	0.913 (0.140)

PREDICTED LOG HAZARD OF STERILIZATION FROM INTERACTIONS MODEL, BRAZILIAN SOUTHEAST

Age 30–34, 2 children



Age 35–49, 3 children



INTERACTIONS MODEL
Exponential of coefficients from hazard models to estimate the risk of sterilization, Brazil, 2001–2006 (n=7,930)

Variables	Interactions
Age at delivery * Parity at delivery	
Age 15–24, 2 children	ref.
Age 25–29, 2 children	3.102*** (0.453)
Age 30–34, 2 children	5.551*** (0.882)
Age 35–49, 2 children	4.766*** (0.932)
Age 15–24, 3 children	0.297*** (0.057)
Age 25–29, 3 children	0.501*** (0.095)
Age 30–34, 3 children	0.761 (0.157)
Age 35–49, 3 children	dropped
Age 15–24, 4 children or more	0.528** (0.169)
Age 25–29, 4 children or more	0.668 (0.218)
Age 30–34, 4 children or more	0.622 (0.189)
Age 35–49, 4 children or more	0.902 (0.298)
Place of delivery * Postpartum duration	
Public hospital (SUS), 0–2 months	ref.
Public hospital (SUS), 3–12 months	0.437 (0.450)
Public hospital (SUS), 13+ months	0.159** (0.120)
Health insurance (“convênio”), 0–2 months	21.970*** (9.724)
Health insurance (“convênio”), 3–12 months	1.825 (2.218)
Health insurance (“convênio”), 13+ months	0.574 (0.616)
Private hospital, 0–2 months	46.890*** (11.120)
Private hospital, 3–12 months	dropped
Private hospital, 13+ months	dropped

Variables	Interactions
Place of delivery * Parity at delivery	
Public hospital (SUS), 2 children	ref.
Public hospital (SUS), 3 children	8.284*** (1.645)
Public hospital (SUS), 4 children or more	4.863*** (1.595)
Health insurance (“convênio”), 2 children	0.090*** (0.042)
Health insurance (“convênio”), 3 children	0.648 (0.282)
Health insurance (“convênio”), 4 children or more	dropped
Private hospital, 2 children	0.101*** (0.026)
Private hospital, 3 children	dropped
Private hospital, 4 children or more	dropped
Region of residence * Postpartum duration	
North, 0–2 months	1.207 (0.142)
North, 3–12 months	0.330 (0.347)
North, 13+ months	0.502 (0.397)
Northeast, 0–2 months	0.941 (0.123)
Northeast, 3–12 months	0.373 (0.393)
Northeast, 13+ months	0.719 (0.555)
Southeast, 0–2 months	ref.
Southeast, 3–12 months	0.231 (0.245)
Southeast, 13+ months	0.201** (0.163)
South, 0–2 months	0.723** (0.0963)
South, 3–12 months	0.164* (0.173)
South, 13+ months	0.139** (0.113)
Central-West, 0–2 months	1.026 (0.125)
Central-West, 3–12 months	0.389 (0.405)
Central-West, 13+ months	0.346 (0.269)