

Gender, Class, and Contraception in Comparative Context:  
The Perplexing Links between Sterilization and Disadvantage\*

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Extended Abstract

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One-third of married or cohabiting female contraceptive users worldwide rely on sterilization for fertility control (United Nations 2011). Sterilization has been the most prevalent method of contraception in the United States for decades, with fully 29 percent of all men and women relying on sterilization in 2006-08 (Mosher & Jones 2010). Although broadly comparative research on contraceptive use is often limited by inconsistent sampling and study designs, levels of contraceptive sterilization are similarly high in Oceanic countries such as Australia (28%) but tend to be lower and more variable across European countries (Mosher & Jones 2010; United Nations 2011).

Sterilization offers highly effective and permanent fertility control and has improved the lives of many women, men, and families. Yet contraceptive sterilization is also generally irreversible, and in some parts of the world carries an ominous history of abuse. Recent media coverage has shed renewed light on a history of involuntary and coerced sterilization in the United States, which disproportionately affected poor women and women of color (Severson 2011; Stern 2005). Considered within this historical context, the fact that female sterilization remains more common among disadvantaged women in the United States (Mosher & Jones 2010) requires careful investigation. Historian Linda Gordon (2002: 344) calls sterilization “a poor person’s birth control.” But in the United States, sterilization is instead more accurately called a “poor *woman’s* birth control,” since vasectomy has long been most common among the most socioeconomically advantaged men (Anderson et al. 2012; Bumpass 1987). Reasons for these associations between sterilization and socioeconomic status remain insufficiently understood, however, and we do not know whether similar patterns exist in other low-fertility countries.

In this research, we consider U.S. patterns of contraceptive sterilization in comparative context. We focus on low-fertility countries which gathered data on contraceptive use as part of the Generations and Gender Programme: Australia, Austria, Belgium, Bulgaria, France, Georgia, Germany, Romania, and Russia. We address a number of broadly comparative questions in this research. First, what is the place of contraceptive sterilization in contemporary contraceptive regimes of low-fertility countries? Second, do socioeconomic gradients in sterilization tend to follow a similar pattern across countries? Does an association between female sterilization and economic disadvantage exist broadly across low-fertility countries? Is a positive relationship between socioeconomic status and male sterilization a phenomenon unique to the United States, or is this also broadly observed across other low-fertility countries? Finally, can demographic background factors explain observed associations between sterilization and socioeconomic status? For example, does a disproportionate reliance on sterilization among disadvantaged women appear to be primarily an artifact of an accelerated childbearing schedule, higher achieved parity, and less stable union histories?

## **DATA, MEASURES, AND METHOD**

Data for this study are drawn from the 2006-10 National Survey of Family Growth (NSFG) and the first wave of the Generations and Gender Survey (GGS).<sup>1</sup> These represent among the most recent nationally representative data available on contraceptive use patterns for all countries considered.

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<sup>1</sup> Dates of the individual GGS country surveys vary (see Table 1), ranging from 2004 through 2010.

The NSFG data are representative of the U.S. civilian non-institutional population of women aged 15-44 years when properly weighted, and include oversamples of women who are Black, Hispanic, or between the ages of 15-24. The sample size is also relatively large, including a total of 12,279 women. The NSFG interviewed men as well as women, but data from men are not used in the current analysis.<sup>2</sup> The NSFG is particularly appropriate for the current analysis because detailed information is gathered on contraceptive method use, as well as key background factors such as education, union histories, parity, age at first birth, race, ethnicity and nativity. All analyses and descriptive statistics are adjusted for the complex sample design.

The GGS is a cross-national, comparative, multidisciplinary, retrospective and prospective study of the dynamics of family relationships in contemporary industrialized countries. Face-to-face interviews were conducted in 19 countries with an average of 10,000 respondents per country. Central topics of the GGS questionnaire are fertility, partnership, transition to adulthood, economic activity, and the intergenerational and gender relations between people expressed in care relations or the organization of paid and unpaid work. The survey is considered to be representative of the 18-79 year old resident population in each participating country. Analyses and descriptive statistics based on GGS data are also adjusted using sampling weights.

We place a number of restrictions on our analytic samples for the current study. Information on contraceptive use is provided in the harmonized GGS data only for individuals in marriages, cohabiting unions, or other “intimate partnerships.” Because of concerns about variability across individual respondents and across GGS countries in the meaning of “intimate partnerships” (e.g., are these meant to refer to any ongoing sexual partnership or only more committed unions?), and to enhance comparability between the GGS and NSFG analyses, we limit the analytic samples to women using contraception who are married or cohabiting with an opposite sex partner. Because of the NSFG’s upper age limit and the fact that sterilization is universally rare at younger ages within our study countries, we further limit the analytic samples to women ages 25-44.

Our primary outcome measure is contraceptive method used. We distinguish among couples relying on female sterilization, male sterilization, or any reversible contraceptive method (e.g., pill, IUD, condom, withdrawal).<sup>3</sup> Our measure of women’s education is based on the ISCED97 classification system. We group women into the following three categories: (1) less than high school education, (2) high school / post-secondary non-tertiary / some college, and (3) tertiary / 4-year college graduate. We also consider a number of other background measures which may be associated with contraceptive use. These include education of the woman’s mother (less than high school education; high school / post-secondary non-tertiary / some college; tertiary / 4-year college graduate), women’s age (25-29 years; 30-34 years; 35-39 years; 40-44 years), current union status (married; cohabiting), woman’s union history (no previous co-residential union; previous cohabitation(s) only; any previous marriage), woman’s parity<sup>4</sup> (0; 1; 2; 3+), woman’s early childbearing<sup>4</sup> (had a first birth between ages 15-19 years;

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<sup>2</sup> We will also replicate analyses conducted here with data from men in future work on this project.

<sup>3</sup> In a small number of instances both partners in a couple were reported being sterilized. These cases were classified as “female sterilized” in our preliminary analyses. We will assess robustness of substantive conclusions to alternate treatments of these cases.

<sup>4</sup> In the Australian GGS, this variable includes adoptive children.

had a first birth between ages 20-24 years; no first birth before age 25), and whether the woman was born in the current country of residence. In ongoing work we are also considering a number of other demographic background factors, including partner characteristics (e.g., education, age, prior fertility), preferences for future childbearing, and for the United States, past histories of unintended childbearing.

Our analysis proceeds in two stages. First, we rigorously describe the associations between education and patterns of total sterilization, female sterilization, and male sterilization in each of our study countries. Because of the potential for reverse causality between respondents' own educational attainment and fertility outcomes, we also consider social class as operationalized by mother's education.<sup>5</sup> Second, to better understand if demographic background factors can explain observed associations between education and sterilization patterns, we estimate a series of country-specific regression models. For countries with meaningful levels of male sterilization (Australia, Austria, Belgium, Germany, and the USA), contraceptive use is analyzed using multinomial logistic regression and the outcome categories of female sterilization, male sterilization, other reversible method. For countries with trivial levels of male sterilization (Bulgaria, France, Georgia, Romania, and Russia), we rely on binary logistic regression of sterilization versus a reversible method. For both sets of models, we first regress contraceptive use on education alone. We then add controls for age, current union status, union history, mother's education, early childbearing, and nativity status to these baseline models. Because of the importance of race to contraceptive use patterns in the United States (Mosher & Jones 2010), we also add a measure of race / ethnicity to models for this country.

## PRELIMINARY FINDINGS

### ***Research Question 1: What is the place of contraceptive sterilization in contemporary contraceptive regimes of low fertility countries?***

We begin by broadly considering the place of sterilization in the contemporary contraceptive regime of each of our study countries. As noted above, our analytic samples are limited to female contraceptive users aged 25-44 years. As shown in Table 1 (and displayed graphically in Figure 1), overall levels of combined female and male sterilization are highest in the United States and Australia (48.2% and 40.7%, respectively). Moderate levels of sterilization are observed in Belgium (18.3%), Austria (15.3%), Germany (13.7%) and Georgia (11.6%). Lowest overall levels of contraceptive sterilization observed are for Russia (6.1%), France (5.6%), Romania (5.2%), and Bulgaria (3.6%). Our study countries also vary considerably in the prevalence of female versus male sterilization. The prevalence of male sterilization is negligible (below 1%) in Bulgaria, France, Georgia, Romania, and Russia. Only in Australia and Belgium is male sterilization more common than female sterilization. A roughly equal balance of male versus female sterilization is observed in Austria, whereas female sterilization is more common than male sterilization in Germany and the United States.

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<sup>5</sup> In the preliminary analyses described here we base measures of own education and mother's education on characteristics of female respondents. In future work on this project we will also construct alternate measures of social class based on the background characteristics of male partners.

[Insert Table 1 and Figure 1 here]

***Research Question 2: Do socioeconomic gradients in sterilization tend to follow a generally similar pattern across countries?***

*Female sterilization:* We next consider how patterns of contraceptive sterilization vary across educational groups in our 10 study countries. First turning to the United States, we see the expected strong and negative relationship between education and reliance on female sterilization. More than half of women with the least education rely on female sterilization for birth control, compared to only 15 percent of women with the highest level of education (see Figure 2). But does a similar association between female sterilization and educational disadvantage exist elsewhere? In short, it does. Female sterilization is associated with educational disadvantage in 9 of our 10 study countries, including Australia, Austria, Belgium, Bulgaria, France, Georgia, Germany, Russia, as well as the United States (see Table 2 and Figure 2). Only in the case of Romania are the least educated women not the most likely to rely on female sterilization. As contraceptive use may be endogenous to educational attainment (e.g., schooling interrupted because of an unplanned early birth), we also investigate differences in patterns of sterilization across socioeconomic background groups defined by mother's education. As shown in Figure 3, we see a similar pattern of results across countries when social class is operationalized as mother's education, with female sterilization most common among women with the least educated mothers. Interestingly, the one exception to this pattern is Romania, where it is again women with the most highly educated mothers who are most likely to rely on female sterilization. This exceptional situation in Romania will receive careful consideration in our analysis.

[Insert Table 2, Figure 2 and Figure 3 here]

*Male sterilization:* We next turn our attention to patterns of male sterilization across educational groups. Turning first to the United States, we see a clear positive relationship between education and use of male sterilization. Roughly 20 percent of the most highly educated U.S. women are relying on male sterilization for fertility control, compared to just under 7 percent of the least educated U.S. women (see Table 2 and Figure 4). But does a similar relationship exist in other countries? In short, it does not. Like the United States, a strong association exists between education and use of male sterilization in Australia, but here it is the least educated women who are most likely to rely on male sterilization. In the other two countries which display a largely monotonic relationship between education and rates of male sterilization (Georgia and France) we again see a reliance on male sterilization to be most likely among the least educated women. In sum, the pronounced association between male sterilization and educational advantage appears to be largely a U.S.-based phenomenon – at least among the ten countries considered here.

[Insert Figure 4 here]

### **Research Question 3: Can demographic background factors explain observed associations between sterilization and socioeconomic status? [In progress]**

Finally, we turn to our regression models to determine if demographic background factors can explain the previously described bivariate association between education and sterilization. Our preliminary analyses point to some interesting findings. First, we find that background factors such as early childbearing, parity, and union history can largely explain the association between female sterilization and disadvantage in some countries but not in others. Notably, a strong relationship between female sterilization and disadvantage persists in Belgium, France, and the United States even once these controls are entered into the model. Interestingly, it is also in two of these countries (Belgium and the United States) that an initially strong and positive relationship between education and male sterilization cannot be explained by our key demographic background factors.<sup>6</sup> Taken together, these findings suggest that it may be necessary to consider the broader context of contraceptive laws and financing in Belgium, France, and the United States to understand patterns of contraceptive sterilization in these countries. These issues will be carefully addressed in the paper's discussion section.

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<sup>6</sup> Levels of male sterilization in France are too low to support a distinct analysis.

**Table 1. Number of women ages 25-44 years in a heterosexual cohabitation or marriage who are currently using contraception and percent distribution by method: Generations and Gender Surveys (GGS) and 2006-10 National Survey of Family Growth (NSFG)**

Country	Reference Period	N	Using Any Method	Sterilization					Summary Measures	
				Female	Male	HER method <sup>a</sup>	Condom	Other less effective method	% of total using sterilization	Of sterilized, % using female sterilization
Australia	2005-06	678	100.0	17.6	23.2	37.2	19.0	3.1	40.7	43.1
Austria	2008-09	1244	100.0	8.1	7.2	60.2	19.8	4.7	15.3	53.2
Belgium	2008-10	720	100.0	8.8	9.6	70.6	6.3	4.9	18.3	47.7
Bulgaria	2004	1818	100.0	3.5	0.1	28.4	25.2	42.8	3.6	96.9
France	2005	1067	100.0	4.8	0.8	84.3	7.5	2.6	5.6	85.0
Georgia	2006	785	100.0	11.2	0.4	42.4	13.6	32.4	11.6	96.7
Germany	2005	1024	100.0	9.9	3.8	71.2	7.8	7.3	13.7	72.1
Romania	2005	1217	100.0	5.1	0.1	40.5	26.8	27.5	5.2	98.4
Russia	2004	1213	100.0	5.9	0.2	48.1	23.2	22.6	6.1	95.9
USA	2006-10	3437	100.0	32.1	16.1	29.4	14.5	7.9	48.2	66.6

<sup>a</sup>Note: Highly-effective reversible (HER) contraceptive methods include hormonal pill, patch, ring, injection, and IUD.

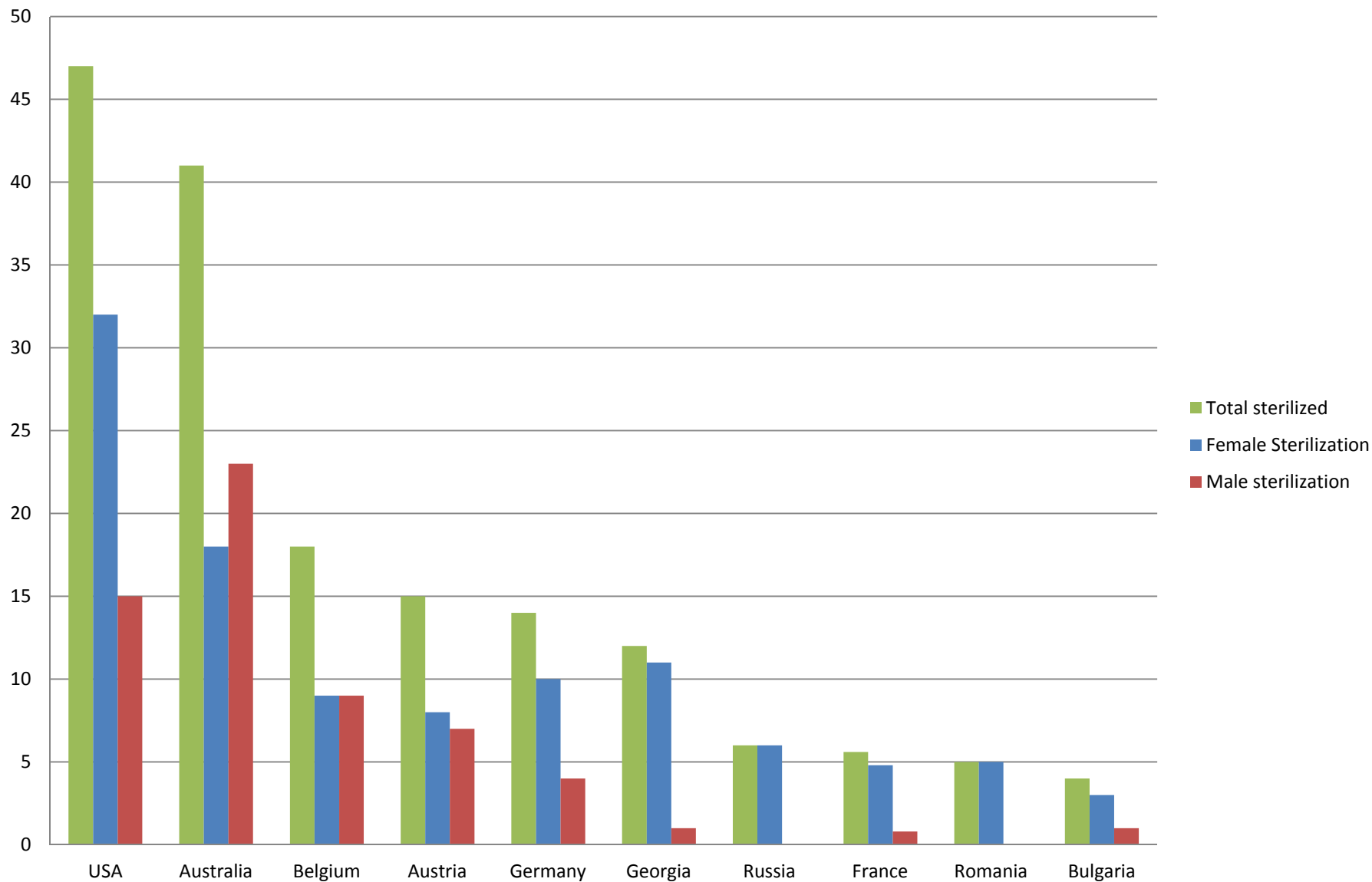
**Table 2. Percentage of married or cohabiting contraceptive users relying on sterilization, by own education: women ages 25-44.**

	USA	Australia	Belgium	Austria	Germany	Georgia	Russia	France	Romania	Bulgaria
% relying on <u>female</u> sterilization										
< High school	53.7	26.7	20.7	18.6	12.1	19.2	9.4	12.3	4.4	4.7
High school / some college	36.9	15.5	12.2	7.3	10.7	10.3	6.2	4.0	5.3	3.6
Bachelor's degree	15.0	12.8	3.5	3.7	6.9	11.4	5.1	2.4	5.7	2.6
% relying on <u>male</u> sterilization										
< High school	6.5	30.0	7.4	6.4	1.6	2.6	0.0	2.6	0.0	0.3
High school / some college	16.5	26.1	11.9	7.8	4.6	0.2	0.3	0.6	0.2	0.1
Bachelor's degree	20.0	16.2	8.6	5.4	2.2	0.4	0.2	0.5	0.0	0.0

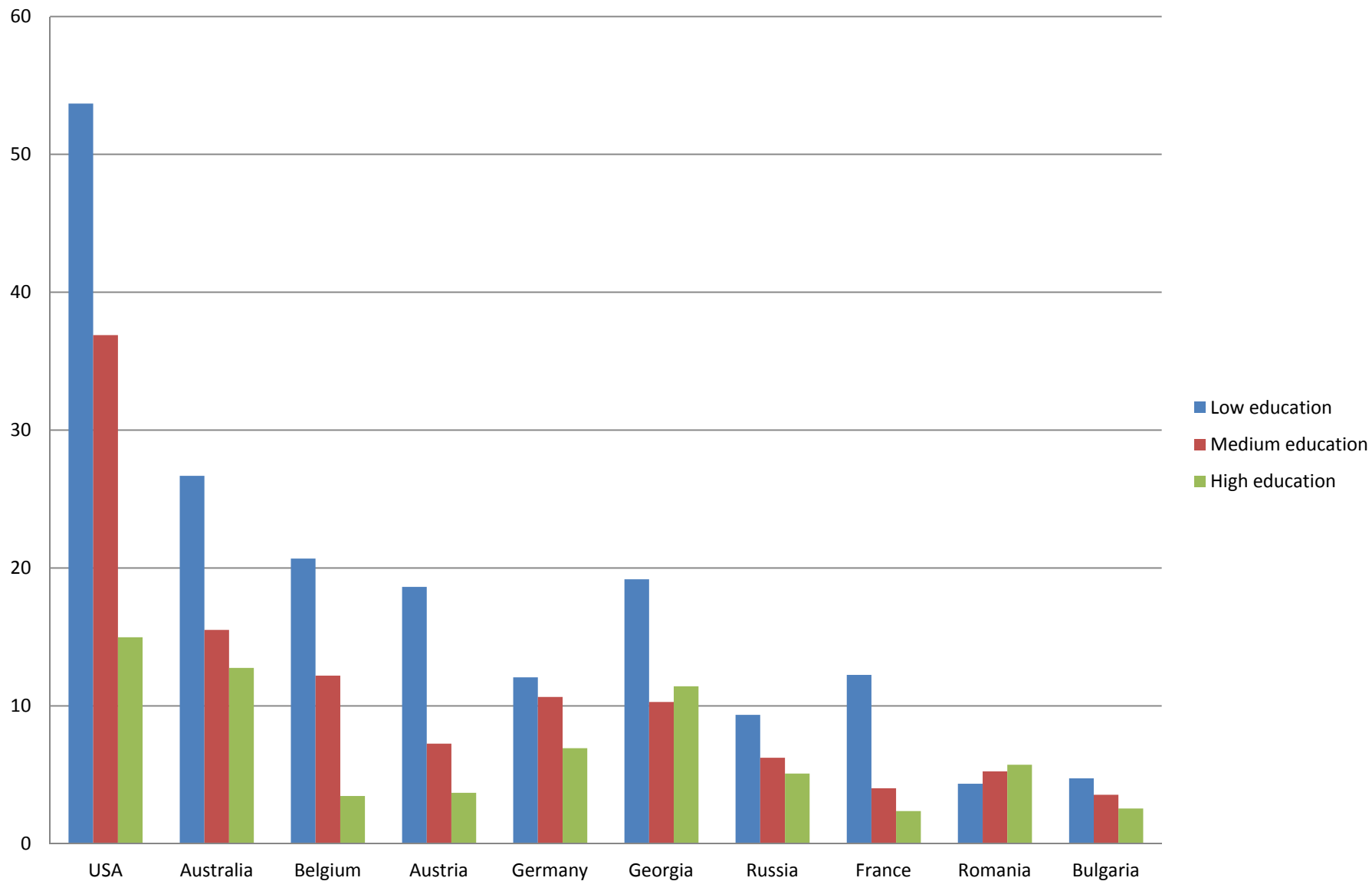
Note. Data drawn from the 2006-10 NSFG and the GGP. Countries listed in order of overall total prevalence of sterilization.



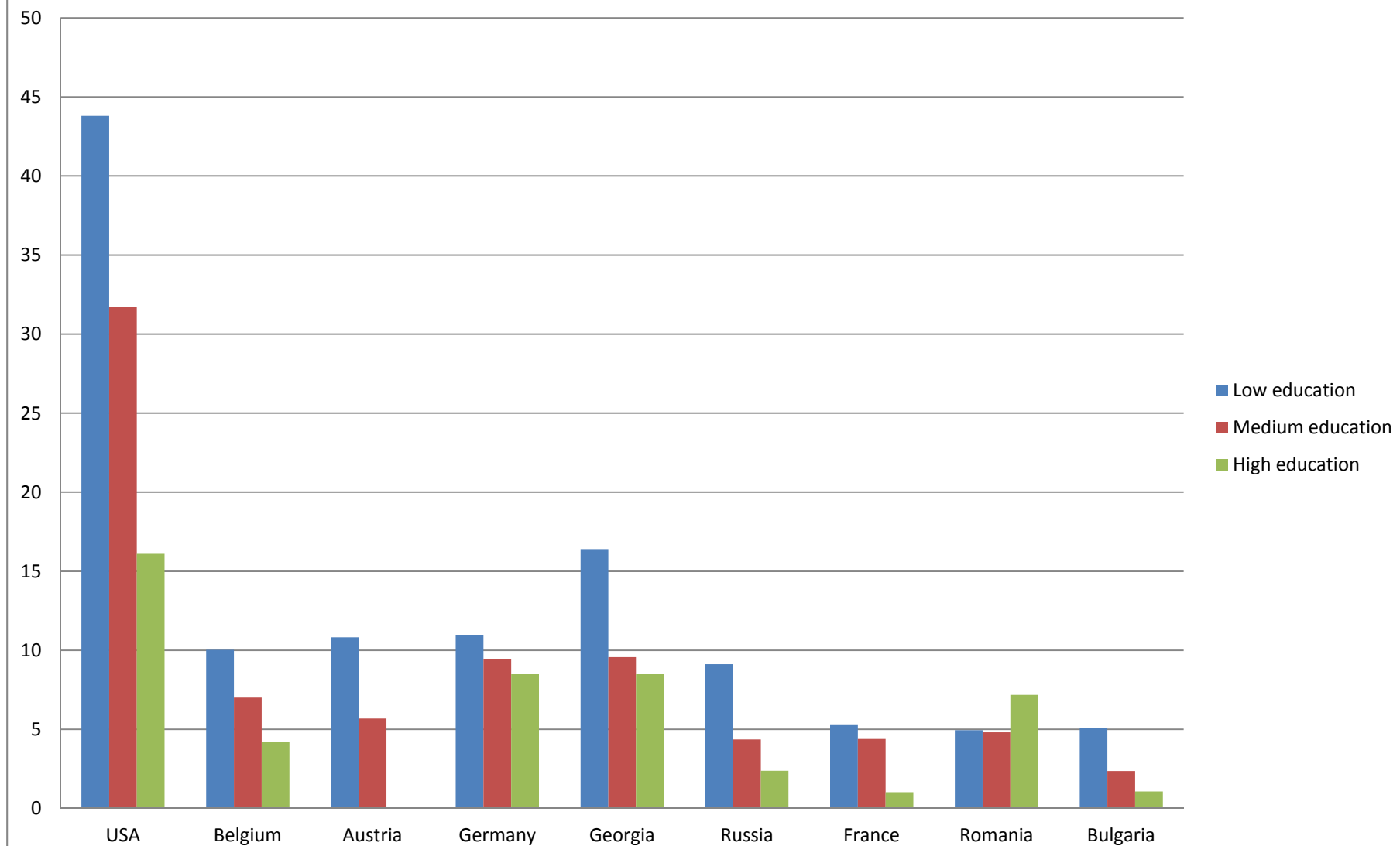
**Figure 1. Percentage of married or cohabiting female contraceptors aged 25-44 years who are relying on sterilization**



**Figure 2. Percentage of married or cohabiting female contraceptors aged 25-44 who are relying on female sterilization, by education**



**Figure 3. Percentage of married or cohabiting female contraceptors aged 25-44 who are relying on female sterilization, by mother's education**



**Figure 4. Percentage of married or cohabiting female contraceptors aged 25-44 years who are relying on male sterilization, by education**

