

EXPLAINING VIOLENCE REPORTS AGAINST WOMEN IN BRAZILIAN MUNICIPALITIES

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ABSTRACT

Violence against women is a major public health and human rights problem. In response, countries have strengthened violence prevention by promoting the creation of several pro-women institutions such as a city council for women's rights, women's police station, and shelter for women facing violence. However, little we know about how these pro-women institutions affect reporting cases of violence against women. This study tests the effect of pro-women institutions on reports of violence against women in Brazilian municipalities. The analysis relies on data derived from the 496 municipalities of the Brazilian state of Rio Grande do Sul. Violence against women is captured with reporting of (a) serious threats, (b) personal injury, (c) rape, (d) attempted murder, and (e) murder. Results seems to be contingent on the type of reporting case and of pro-women institution. Having a police station for women issues boots reporting cases of personal injury and having a public defender officer for women boots reporting cases of serious threats and attempted murder. This study provides evidence on the importance of creating local pro-minority institutions able of receiving and forwarding the demands of social minorities and to reinforce the responsive role of governments.

Keywords: violence against women, reports, pro-women institution, municipality, Brazil.

Introduction

Worldwide violence against women is a major public health and human rights problem, according to the World Health Organization (2002). This sad situation is compounded by the ethical, safety and methodological concerns involved in researching this problem (WHO, 2003). Underreporting cases illustrate a methodological concern. Despite limitations, existing research has explained violence against women based on class, age, race, religion, cultural, social relations, educational and occupational status, and institutional explanations (Ellsberg et al., 2001; Yodanis, 2004; Sokoloff and Dupont, 2005; Flood and Pease, 2009). Scholars also have tested the explanatory power of gender representation (Miller and Segal, 2018) on reported cases of violence against women.

In 2008, the United National Secretary-General launched a multi-year global campaign called UNiTE to End Violence against Women. The campaign recognizes the power of the law. One of its five key goals was for all countries to adopt and enforce national laws and institutions that address and punish all forms of such violence, in line with international human rights

standards (United Nations, 1993). The promoted laws target to criminalize such violence, ensure the prosecution and punishment of perpetrators, empower and support victims, and strengthen prevention. In response to this global campaign, countries have opted for promoting the creation of pro-women institutions, with the goal of empowering and supporting victims and strengthening violence prevention. Brazilian municipalities, for example, were encouraged to create several pro-women institutions, such as a municipal secretary for women's rights, women police station, reference center for women, and shelter for women facing violence. However, we know little about the effects these pro-women institutions have on reporting cases of violence against women.

The aim of this study is to test the effect of pro-women institutions on reports of violence against women in Brazilian municipalities. Consequently, the present study pays particular attention to the role of pro-women institutions on the reporting effects of violence against women. Two reasons motivated our focus on pro-women institutions. First, unlike economic, demographic, and contextual factors, pro-women institutions are instruments available for adoption by any country and any subnational government. Second, despite the worldwide call for adopting pro-women institutions, considerable variation exists in such institutions both across countries and within countries, giving researchers a justifiable reason to test the reporting effect of this variation.

Specifically, the study derives data from the 496 municipalities of the Brazilian state of Rio Grande do Sul during two different period, 2012/2013 and 2017/2018. Data on violence against women are from 2013 and 2018, while data referring to institutions are from 2012 and 2017. Brazil is a semi-industrialized country, whose municipal contexts and legislation in favor of pro-women institutions make it worth studying. Despite the many laws that seek to protect women from domestic and general violence, Brazil has large number of cases of violence against women, among the countries with the highest rates of violence and murder against women, according to data from the Women Stats Project (<http://www.womanstats.org/>).

Violence against women is captured with reporting of five different violent actions: (a) serious threats, (b) personal injury, (c) rape, (d) attempted murder, and (e) murder. We focus on the reporting effects of having seven specific pro-women institutions: (i) a municipal secretary for women's right, (ii) a city council for women's rights, (iii) a women's police station, (iv) a special court of violence against women, (v) a women's public defender office, (vi) a reference center for women, and (vii) a shelter for women facing violence. The study controls for municipal-level characteristics, including demographic, economic, social, cultural and female representation in political.

Violence against Women

The term 'violence against women' has been addressed differently in the literature. Some emphasize the context of violence (Aizer 2010, Anderberg et al., 2013), others stress the specific act that characterizes violence (Watts and Zimmerman, 2002), and still others focus on the victim and the consequences of violence (Smith 1994). According to the United Nations' Declaration on the Elimination of Violence against Women (UN, 1993, p. 2), violence against women means "... any act of gender-based violence that results in, or is likely to result in physical, sexual or psychological harm or suffering to women." According to the Declaration, 'gender-based' violence involves unequal relationships between men and women and emphasizes that violent acts are rooted in sex inequality (Watts and Zimmerman, 2002).

Violence against women includes specific forms of abuse, such as physical violence ranging from slaps, punches and kicks, female genital mutilation, acid throwing, rape, dowry deaths, assaults with a weapon and murder. It also includes several kinds of sexual violence, such as forced sex or forced participation in degrading sexual acts, and psychological violence (Watts and Zimmerman, 2002). The potential perpetrators include spouses and partners, relatives and other family members, neighbors, teachers, employers, policemen and soldiers, among others. However, one of the most common perpetrators is a husband or an intimate male partner (Garcia et al., 2020). The fact that women are often emotionally involved with and economically dependent on those who victimize them has major implications for both the dynamics of abuse and the approaches to dealing with it (WHO, 2002).

In addition to the distinction between violence against women (broader definition) and domestic violence (narrower definition), Kilpatrick (2004) offers another distinction, which derives from contrasting a criminal justice approach with a public health approach. From the criminal justice perspective, violence against women would be defined as the subset of violent crimes perpetrated against women. This definition excludes psychological abuse (Kilpatrick, 2004). In most countries, the criminal justice approach identifies murder, assault, rape, and stalking crimes irrespective of the relationship between perpetrator and victim. On the other hand, the public health perspective follows the definition of the World Health Organization and defines violence against women as a subset of interpersonal violence and includes the typologies of physical, sexual and psychological violence (Kilpatrick, 2004).

Violence against women is a complex phenomenon divided into three categories by the WHO Report on Violence and Health: (a) self-directed violence, (b) interpersonal violence, and (c) collective violence. Self-directed violence focuses primarily on suicidal behavior, one of the external causes of injury and often the product of the other types of violence. Interpersonal violence is violence inflicted by another person or by a small group of people on women. Collective violence is related to a particular social agenda, and includes crimes of hate committed by organized groups, terrorist acts and mob violence (WHO, 2002). Still, according to WHO, interpersonal violence is the most universal form of violence against women, as it takes place in almost all societies.

The nature of the violent act is commonly categorized as physical, psychological, or sexual (Krantz and Garcia-Moreno, 2005). Physical violence is exerted through aggressive acts involving physical force, such as kicking, biting, slapping, beating, or even strangling (Ellsberg et al., 2014, and Smith 1994). Psychological violence can be mental or emotional and describes acts, such as preventing a woman from seeing family and friends, ongoing belittlement or humiliation, economic restrictions, violence or threats against cherished objects and other forms of controlling behaviors (Krantz and Garcia-Moreno, 2005). Since this typology of violence involves different forms, it becomes more difficult to define because it can be subtle and difficult to detect, as women may consider it natural due to social and cultural values (Ellsberg et al., 2014). Finally, sexual violence includes forced sex through threats, physical force, and intimidation. It also involves forced participation in degrading sexual acts, as well as acts such as the denial of the right to use contraceptives or to adopt measures to protect against sexually transmitted diseases (Krantz and Garcia-Moreno, 2005).

In the present paper, violence against women is broadly defined following the criminal justice approach. That is, violence against women includes physical and sexual violence crimes perpetrated by a husband, a partner, and/or anyone else. Consequently, our dependent variable captures state police reports of serious threats, personal injury, rape, attempted murder, and murder against women, including children. Our definition excludes psychological abuse

because in many cases it is not categorized as a crime (Kilpatrick, 2004). Therefore, our definition of violence against women is limited to cases actually reported to the police. Of the five types of crimes mentioned, only murder reflects the total number of cases actually occurred, all others depend on the victim's decision to report or not the violence suffered.

While part of the literature emphasizes the violence actually suffered by women, that is, the physical, sexual and/or psychological result of the act of violence, other studies emphasize the reporting of violence, that is, the act of reporting violence and formal aspects that involve this. Although they are effects of the same phenomenon, the distinction is important because many cases of violence against women are not reported. In a survey conducted in 2019 with just over a thousand women from 130 Brazilian municipalities, it indicated that 27.4% of the interviewees said they had suffered some violence; among those, 52% did not report the cases (Brazilian Forum on Public Security, 2019). The number of reports, in a way, indicates the confidence of women in the system, as the feeling of security is a determining factor to carry out a complaint.

Incident characteristics that prompt reporting include severity, property damage, and use of a weapon (Akers and Kaukinen, 2009; Chen and Ullman, 2010). Lack of injury discourages reporting (Chen and Ullman, 2010), in part because of fears of disbelief (McGregor et al., 2000). Individual determinants of police reporting include awareness and use of support services, medical care, and forensic exams (Zweig et al., 2014; Marchetti, 2012). At the interpersonal level, experiencing violence from a known aggressor, including partners, discourages police reporting (Chen and Ullman, 2010; McGregor et al., 2000), likely reflecting social or economic dependence, and fear of retribution (McGregor et al., 2000; Marchetti, 2012). Perpetrators sometimes engage in direct interference in successful police contact, via physically preventing calls to police, as well as manipulation of police (Wolf et al., 2003). Gender-based and race-based inequities intersected at the structural and community levels to discourage women from police contact following intimate partner violence and sexual violence (Decker et al., 2019).

Several innovations have been created to help women overcome obstacles that hinder or even prevent aggressors from being reported (Jewkes and Dartnall, 2019). An example of this are digital technologies that guide and provide security mechanisms so that reports can be made. Digital technologies are tools or resource that can be integrated with other effective programs and that women can use anonymously, 24/7, without feeling judged. These digital technologies can be webpages or mobile device applications, with extensive safety features that are delivered through appropriate technology (Koziol-McLain et al., 2018; Hegarty et al., 2019; Wood, Glass and Decker, 2019).

In addition, many recent studies on violence against women have been carried out with innovative focus of analysis, for example: violence against refugee women (Nam, Kim and Ryu, 2017), physical violence in women frequenting primary health care clinics (Eldoseri and Sharps, 2017), violence against infertile women (Alijani et al., 2019), violence against women in politics (Krook, 2020), among others. Recent studies also offer scale to measure violence against women (Bettio, Ticci e Betti, 2020), and several studies about the relationship between pandemic and violence against women (see Peterman et al., 2020 for an excellent review on the topic). Innovative studies are welcome, as they may indicate new drivers of violence against women, in addition to those already indicated in the literature and presented in the following section.

Drivers of Violence against Women

The literature provides several explanations for the occurrence of violence against women (Ellsberg et al., 2001; Yodanis, 2004; Sokoloff and Dupont 2005; Flood and Pease, 2009; Miller and Segal 2018). The theoretical models describe both the risk and protective factors of this type of violence based on social, legal, political, cultural, economic, biological, psychological, and gender equality concepts. The most widely used model is called the ‘ecological model,’ which proposes that violence is the result of factors operating at four different levels: individual, relationship, societal and community (Heise, 1998). The United Nations and the World Health Organization have embraced this ‘ecological model’ because this it addresses both the factors instigating a woman to suffer abuse and violence and the drivers prompting individuals to commit acts of abuse and violence (Garcia-Moreno et al., 2005).

According to the ecological model, the individual and relationship levels are directly related to the home and family environments of perpetrators and victims. The individual level includes biological and personal history factors that increase the likelihood of a woman or child becoming a victim, as well as the likelihood of an individual becoming a perpetrator of violence. Factors, such as impulsivity, low educational attainment, substance abuse, and prior history of aggression and abuse, are some of the triggering mechanisms (Heise, 1998; WHO, 2002). In turn, the relational level includes risk-increasing factors resulting from relationships with intimate partners and family members, who form women’s closest social circle (WHO, 2002). At this level, if a woman has been exposed to abusive behavior, it is likely she will be repeatedly abused because victim and perpetrator are bound in a continuing relationship (Reiss and Roth, 1993).

Another important theoretical model used to explain violence against women is the ‘feminist theory,’ which sees violence against women as the result of gender inequality on the societal level (Bograd, 1988). Compared to men, the more unequal women are in a specific society, the more likely men are to be violent toward them. The roots of gender inequality are both ideological and structural because beliefs, norms, and values about the status and roles of women in society and women’s access to positions within social institutions determine gender gap (Dobash and Dobash, 1979). According to Gelles (1993), the feminist theory had become “the dominant model for explaining violence toward women” (p. 41).

In addition, Bradley and Khor (1993) emphasize the economic, social, and political dimensions of gender inequality. Economic dimension includes women’s status in “activities and institutions built around the production, distribution, and consumption of goods and services” (Bradley and Khor, 1993, p. 349). However, controversy exists in regard to the relationship between economic factors and violence against women due to inconsistent empirical evidence. Most previous studies center on domestic violence; therefore, hypotheses focus on family relationships and the economic disparities between men and women. Although considerable evidence exists of domestic violence against women in the Latin American context (Sarah, Guedes, Goodwin and Mendoza, 2012; Cerqueira, Moura and Pasinato, 2019), it is also important to explore the possible divergences between economic models focusing on individual relationships and those focusing on broader economic relationships.

Institutional Drivers of Violence against Women

Scholars have highlighted the role of institutional drivers in explaining violence against women. For instance, adoption and implementation of punitive laws requiring legal actions for the perpetrators of violence against women should have a deterrent effect (Devries et al, 2013;

Elsberg et al., 2014). Deterrence legislation varies in scope and degree. Table 1, for example, shows the percentage of countries in each region of the world that have laws to combat different types of violence against women. Not all agree on the deterrence effects of punitive laws. Some, for example, contend that having punitive rules is a necessary but not a sufficient condition to deter perpetrators from attacking women (Htun and Weldon, 2012). In Brazil, for example, even with a large number of punitive laws (see Figure 1), violence against women has steadily increased in the last years (IPEA, 2019). Therefore, we suggest that, to be effective, punitive laws need to be accompanied by local public policies and institutions in favor of women's rights. Acting together with legislation, public policies and specific institutions can create an institutional framework that helps to organize demands in civil society and to pressure local governments to be responsive to social demands.

In the present work, we investigate the effect of different types of local institutions on the report of violence against women: (a) political institutions, such as, secretariat for women's rights and a municipal councils for women's rights; (b) justice institutions, such as police stations specializing in violence against women, a special courts and a public defenders officer for women; and (c) support institutions, such as reference centers and shelters for women facing violence. In the following paragraphs we offer a set of hypotheses for the effect of each of these kind of local institutions in the reports of violence against women.

The creation of institutions that reflect social diversity can help people to demand their rights, as these institutions provide the channel that allows individuals and society in general to claim from the State the guarantee of their individual and collective rights. In this logic, pro-minority institutions are effective when the State is responsive, as the creation of institutions alone does not guarantee the expected results (Einsten, Palmer and Glick, 2018). Thus, in general terms, in places where institutions were created, both an increase in the promotion of rights and an increase in complaints is expected. Scholars of local government contend that institutions that spur neighborhood-based political participation help provide voice to minority and underrepresented groups, enhance citizen efficacy, and are integral to a thriving democracy (Stone and Stoker 2015; Einsten, Palmer and Glick, 2018).

Local, subnational and national governments may jointly or independently adopt one or several of pro-women institutions, such as special courts of violence against women, police station for women, public defender offices for women, and shelters for women facing violence, among others. The drivers leading to the adoption of these pro-women institutions are outside of this research's scope. Regarded of these motivations, once in place, these pro-women institutions should empower women to come forward and report their experiences with physical and sexual abuse. Although not all pro-women institutions may directly prevent women from being victims of violence, as in the case of police stations for women, their goals to support and encourage women to report violence and abuse (Avdeyeva, 2009). These pro-women institutions rely on media campaigns and personal services to reach out women. Therefore, a higher number of pro-women institutions should empower women to speak out and report their experiences with both domestic and general violence.

Thus, we hope that the existence of pro-women institutions in the municipalities will have the effect of encouraging reports of violence against women. In the case of political institutions, such as the secretariats and women's rights councils, we hope that they will influence the development of participatory public policies and become channels of representation for gender demands in municipalities. This would facilitate women's recognition of their rights and specific channels to demand that these rights are respected. Specifically, in relation to reports of violence against women, the expected role of these political institutions is

to encourage women to access the justice system whenever necessary. Therefore, here is our first hypothesis.

H1: Municipalities with institutions in favor of women's rights are more likely to register more cases of violence.

Likewise, we hope that the existence in the municipalities of justice institutions aimed exclusively at women will be a mechanism to encourage reports of violence suffered by women. Such institutions, such as the police station, special courts and public defenders, all specialized in crimes of violence against women, are official and safe channels, created to meet the specific demands of women. In specialized police, for example, victims are received by female police officers. These institutions of justice can be accessed by needy women who have been victims of violence, and who, in addition to denouncing the aggressor, have also prosecuted him. Women who resort to public defender, for example, are unable to afford to pay for a private lawyer. When this type of institution exists in the municipality, we believe that women feel more secure and confident in carrying out a lawsuit against their aggressors, which necessarily involves reporting the aggression suffered. Thus, our second hypothesis reports the following.

H2: Municipalities with women's justice institutions are more likely to report more cases of violence against women.

Another type of important local institution in the municipalities is the support institution, which offers help to women in situations of violence. Examples are reference centers, which offer psychological, legal and information support for women in situations of violence, and shelters, which offer temporary housing and food for women who have suffered domestic violence and have had to leave home. The existence of this type of institution signals to women that they are not alone, that they can count on government and society support to face the consequences of reporting a suffered aggression. We believe that the existence of support institutions in the municipalities encourages women victims of violence to report their aggressors, as follows in the third hypothesis.

H3: Municipalities with institutions that support women in situations of violence are more likely to report more cases of violence against women.

Finally, as a synthesis of the arguments in the previous paragraphs, the fourth and last hypothesis holds that the number of pro-women institutions in the municipalities, regardless of the type of institution, will positively influence reports of violence against women.

H4: The greater the number of pro-women institutions in a municipality, the greater the number of reported cases of violence against women.

Research Design and Data Operationalization

The derived hypotheses can be tested in any context and across units of any level of government. In this study, the unit of analysis is the municipality-year. Specifically, the analysis covers all the 496 municipalities of the Brazilian state of Rio Grande do Sul in two different periods, 2012/2013 and 2017/2018. Data on violence against women are from 2013 and 2018,

and data on pro-women institutions are from a year earlier, 2012 and 2017, thus forming a panel with 992 observations.

We selected the state of Rio Grande do Sul (RS) for several reasons. First, it is one of the most important Brazilian states. RS is the fifth most populous state, with approximately 11 million people (IBGE, 2019). In economic terms, Rio Grande do Sul has the fourth-largest gross domestic product (GPD), surpassed only by the states of São Paulo, Rio de Janeiro, and Minas Gerais. RS has the largest number of elderly people in the country, the second-highest life expectancy, and one of the highest schooling rates and lowest child mortality rates in the country (IBGE, 2019). But the main reason for choosing RS is that its homicide rates against women are very similar to national rates. Mortality official data show that the Rio Grande do Sul had a rate of 5.2 homicides of women in 2017 for each group of 100,000 women, slightly above the national average of 4.7. Among the 27 Brazilian states, the state of São Paulo had the lowest rate (2.2), and the state of Roraima the highest (10.6) (IPEA, 2019).

Brazil has showed a significant growth of 30.7% in the number of homicides of women during the 2007- 2017 period, according to data aggregated by IPEA (2019). In 2017 alone, 4,936 women were killed, approximately 13 murders per day, the highest number since 2007. These figures show the magnitude of the problem of violence faced by women in the country, with dramatic social and economic results. Despite the large number of cases of violence against women, Brazil has many laws that seek to protect women from domestic and general violence. The federal government has exclusive control to legislate on this subject, and its laws are valid across all states and municipalities.

Our dependent variable consists of five official reports of domestic and general violence against women: (a) serious threats, (b) personal injury, (c) rape, (d) attempted murder, and (e) murder. The records of violence are registered originally in the municipal civil police stations and sent monthly to the Secretariat of Public Security of the RS, which analyzes, aggregates and makes the data available for public consultation. Our data about violence against women derives from the Secretariat of Public Security and cover two years 2013 and 2018. Of the five variables, only murder is automatically registered by the police, the others depend on the attitude of the victim, or someone else, in carrying out formal registration at police stations. See descriptive statistics in Table 2.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Violence against women reports					
Serious threat (per thousand women)	992	5.768	3.184	0	20.997
Personal injury (per thousand women)	992	2.748	1.867	0	10.769
Rape (per thousand women)	992	.222	.318	0	2.136
Attempted murder (per thousand women)	992	.032	.108	0	1.479
Murder (per thousand women)	992	.019	.099	0	1.203
Institutional drivers					
Municipal secretary for women's rights (d)	992	.114	.318	0	1
City council for women's rights (d)	992	.115	.319	0	1
Women civil police station (d)	992	.081	.272	0	1

Special court for women (d)	990	.040	.197	0	1
Women public defender's office (d)	988	.053	.225	0	1
Reference center for women in violence (d)	992	.066	.248	0	1
Shelter for women in violence (d)	992	.033	.179	0	1
Total pro-women institutions ^a	992	.502	1.151	0	7
Controle variables					
GDP per capita (Brazilian <i>Reais</i> R\$1,000)	992	30,3	19,2	9,6	289,9
Employed women population (%)	988	24.44	5.17	11.29	37.39
Women with higher education (%)	991	5.04	2.21	.35	17.86
Women mayoral (d)	992	.072	.258	0	1
Mayoral right-wing party (d)	992	.630	.483	0	1
Women councilors (%)	992	15.27	11.19	0	55.55
Women civil police chiefs (d)	992	.053	.225	0	1
Total Population (x1,000)	992	21,6	75,8	1,2	1409,3
Human rights NGOs (per thousand hab.)	978	.938	1.131	0	7.397
African population (%)	992	3.22	2.603	.036	14.143
Evangelical (Pentecostal) population (%)	992	17.89	13.14	.42	85.84
Rural population (%)	986	44.72	24.99	0	94.48
Year 2018 (d)	992	.50	.50	0	1

Source: prepared by the authors; (d) dichotomic variable; ^a Sum of the seven pro-women institutions.

To explain violence against women, we use institutional variables concerning the existence of municipal institutions in support of women. Our institutional variables assesses the explanatory power of seven local pro-women institutions: (i) a municipal secretary for women's right, (ii) a city council for women's rights, (iii) a women's police station, (iv) a special court of violence against women, (v) a women's public defender office, (vi) a reference center for women, and (vii) a shelter for women facing violence. All variables are dichotomous and were collected from the Basic Municipal Information Search (Munic) database, organized by IBGE, the Brazilian agency responsible for conducting the main official surveys of the country, which provides different types of information about all the 5,665 Brazilian municipalities. Data referring to pro-women institutions are collected in the municipalities by IBGE every four years, so we use data from 2013 and 2018. In addition to the seven variables mentioned, an eighth variable was created from the sum of the institutions present in each municipality, thus varying from zero to seven. We call this variable the total pro-women institutions.

We control for economic, political, demographic, and social variables. The economic variables include: (a) gross domestic product – GDP per capita in thousands of Brazilian currencies (*Reais* - R\$); (b) percentage of employed women population; (c) and (d) percentage of women population with higher education. Values for all economic variables are derived from the 2010 Brazilian census (IBGE). We use four political variables as control: (a) women mayoral; (b) mayoral political party; (c) percentage of women councilors, and (c) women police chief. Only the third variable is continuous, the others are dichotomous. The socio-demographic control variables are: (a) total population; (b) number of human rights NGOs per thousand of

inhabitants; (c) percentage of Afro-descendant population; (b) percentage of evangelical population from Pentecostal religions; and (c) percentage of rural population dedicated to the agricultural sector.

Given the nature of the data, we report estimates for between-unit effects in panel data. Five indicators capture five types of violence against women, our dependent variables. A regression model was estimated for each dependent variable. We tested the models with each of the explanatory variables (seven pro-women institutions) and with only one explanatory variable, total pro-women institutions. In doing so, it was possible to compare the individual effects of each pro-women institutions and the aggregate effect of all of them.

We use cross-section random effects to analyze the panel data due to the small variability in observations between the different periods considered in the survey (between municipality). To define the most adequate analysis model for the data we also rely on Hausman test for fixed versus random effects model and Breusch-Pagan LM test for random effects versus OLS. Both tests pointed to random effects as the most appropriate. To test the collinearity in the models, we performed the VIF test (variance inflation factor) for all variables in the models. The result (1.49) indicated the existence of a correlation between the variables, but not enough to compromise the results.

Results and discussion

Table 3 presents the results of the regression analysis for cross-section random effects. The Rho parameter shows that each model respectively predicts 52% of the variation in threat reports, 41% in injury, 7% in rape, 16% in attempted murder, and 0% in murder. In these models, all variables were considered, including control variables. Considering only the institutional variables, only two, women police station and women public defender, had a statistically significant influence on violence reports. The other institutional variables had no significant effect on violence reports.

Table 3. Regression results

Independent Variables	Dependent Variables				
	Threat	Injury	Rape	Attempted murder	Murder
Institutional drivers					
Municipal secretary for women's rights	-.149	-.289	-.033	-.012	-.007
City council for women's rights	-.038	.125	.035	.004	-.002
Women civil police station	.169	.607**	.027	-.007	.003
Special court for women	-.127	.077	-.061	.016	-.006
Women public defender's office	.395*	.008	-.010	.043*	.026
Reference center for women	-.106	.036	-.045	.012	.007
Shelter for women in violence	-.291	.077	.041	.003	-.006
Control variables					
GDP per capita	-.008	-.003	.000	.000	-.001
Employed women population	-.071**	-.064**	-.010**	.000	.000

Women with higher education	.102*	.020	-.001	.000	.001
Women mayoral	-.395*	-.297*	.014	-.001	-.015
Mayoral right-wing party	-.063	-.196*	.024	-.010	-.008
Women councilors	-.003	-.003	-.002*	.000	.000
Women civil police chiefs	.203	-.192	-.009	.005	.007
Total population	-.002	.001	.000	.000	.000
Human rights NGOs	-.129**	-.129**	.016	-.006*	.002
African descendent population	-.013	-.016	.007	.002	.001
Evangelical population	.004	.001	.000	.000	.000
Rural population	-.057**	-.035**	-.002**	.000	.000
Year 2018	.066	-.344**	.028	.014*	.006
Constant	10.026**	6.362**	.566**	.053*	.033
Rho	.518	.409	.067	.165	.000

Source: prepared by the authors; Panel data with random effect; * $p < .05$; ** $p < .01$

Results fail to show a conclusive picture of the effects the institutional variables studied in this research. However, findings are consistent in showing a boosting positive effect on injury reports when a municipality has a women police station. Indeed, the coefficient on women police station is positive and statistically significant at the 5% level for personal injury. Results also shows a boosting positive effect on threat and attempted murder reports when a municipality has a women public defender officer. These two types of justice institutions were the only pro-women institutions that had a statistically significant effect on violence reports.

In sum, as expected, the existence of women police stations encourages women to report personal injuries. As previously discussed, the existence of women police stations contributes considerably to the application of laws (Elsberg et al, 2014). This institution ends up encouraging women to report their aggression experiences. Battered women feel safer to report the aggressors when there is a police unit in the municipality that specializes in serving women, including care and services provided by female police officers. This result provide support for our hypothesis 2.

As expected, the existence of a women public defender office in the municipality encourages women to report violence. Two types of violence proved to be significant, threat and attempted murder. As discussed, this institution of justice that can be accessed by needy women who have been victims of violence, and who, in addition to denouncing the aggressor, have also prosecuted him. Women who resort to public defender do not have the financial means to meet the costs of a private lawyer. When this type of institution exists in the municipality, women feel more secure and confident in carrying out a lawsuit against their aggressors, and this necessarily involves reporting the aggression suffered. This results also provide support for our hypothesis 2.

The study's findings do not provide support for hypotheses 1, 3 and 4. Neither the political institutions (Hypothesis 1) nor the support institutions (Hypothesis 3) had significant effects on reports of violence against women. Hypothesis 4 was also not supported. However, it is important to emphasize that these institutions may be important for several other reasons, and that the fact that they do not directly influence the reports of violence, considering the data

and variables used in this study, cannot be used as an argument for them to be reformed or even extinct. Further studies are needed to assess other impacts of these institutions on social problems related to gender in municipalities.

Regarding the control variables, those that showed a significant relationship with the reports of violence were as follows: (i) employed women population, with a negative effect on threat, injury and rape reports; (ii) women mayoral, with a negative effect on threat and injury reports; (iii) mayor right-wing party, with a negative effect on threat and injury reports; (iv) human rights NGOs, with a negative effect on threat, injury and attempted murder reports; and (v) rural population, with a negative effect on threat, injury and rape reports. All the statistically significant effects were negative, which means that the control variables mentioned above are associated with the decrease in reports of various types of violence against women.

The economic factor that seem to affect violence reports is employed women population. This means that the higher the percentage of women population employed, the lower the report of threats, injury and rape. If the decrease in the number of reports is being caused by the effective reduction of cases of violence, the finding is support by WHO's (2002) observation that communities characterized by problems, such unemployment, are more likely to experience violence, including violence against women. However, the results do not corroborate evidence from previous studies that indicate that cities with a higher proportion of employed women, the number of reports of violence tends to be higher. That is, women's access to an individual income may result in greater autonomy and confidence, thereby reducing the barriers that often prevent reporting of suffered violence (Bhattacharya et al., 2009; Anderberg et al., 2013).

In general, women representation in political positions seem to reduce reports of violence against women. The coefficient on women mayors is negative and statistically significant for serious threat and personal injury at the 10% level. Moreover, the coefficient on mayor right-wing party is also negative and statistically significant for personal injury at the 10% level. These findings go against previous studies that found that higher women representation at leadership positions would encourage women to voice mistreatments and aggressions. Having a woman as the chief police officer and the percentage of female councilor neither deters nor boosts report of violence against women.

Among the social and demographic factors, only the percentage of rural population seem to affect reports or violence against women. Across the five models, the rural population affects negatively threat, injury and rape, at the 5% level. That is, cities with a larger rural population report lower serious threats, personal injury, and rape against women. This result may indicate that violence against women is a phenomenon predominantly in urban centers and/or women in rural areas have no access or more difficulties reporting mistreatments and aggressions. In fact, few rural areas in Brazil have police stations, and pro-women institutions are mainly located in urban areas (Hetling, 2000).

Conclusions and limitations

This study contributes to the limited body of empirical research on violence against women by investigating the influence of institutional factors on violence reports. The study innovates by: (a) conducting analyzes that consider different types of violence against women, from serious threat to murder; (b) testing the effect of different types of pro-gender institutions on violence reports; (c) controlling for a large set of contextual variables in the explanation of

reports of violence; and (d) using local data from municipalities in Brazil, one of the countries with the highest number of cases of violence against women.

As Brazil has many laws that criminalize different types of violence against women, doubts exist about its effectiveness in deterring violence against women and encouraging women to report mistreatments. Results seem to be contingent on the type of reporting case and of pro-women institution. Having a municipal police station for women issues boosts reporting cases of personal injury, suggesting the need to reinforce the role of women police stations (Lievore, 2003; Flood and Pease, 2009). Results also suggest that having a public defender officer for women issues boosts reporting cases of threats and attempted murder. These are encouraging news in the long search for solutions.

Our research does not go without limitations. The main limitation is the potential of underreporting cases of violence against women reports. On the one hand, the analyzed indicators of violence against women capture the occurred cases. On the other hand, the studied reporting cases may also capture battered women's willingness, freedom and/or power to report aggressions. Of the five violence against women indicators, only murders are reported regardless of the victim's decision. The other four indicators fail to differentiate between reported and unreported crimes. This limitation should not refrain us from assessing the reporting effects of existing institutions and contextual conditions, for results could shed light into what deters and ignites violence toward women.

This research calls for further tests of the suggested integrative framework in other countries and other levels of governments. The analysis here focused on the Brazilian state of Rio Grande do Sul to assess the effectiveness of pro-women institutions in empowering women to report mistreatments and aggressions. Future studies should also explore the conditions under which pro-women institutions are more likely to empower women. It would also be interesting to investigate the factors that influence the creation of pro-women institutions in Brazilian municipalities. Since the findings of this research indicated that the existence of some types of pro-women institutions encourages women who have been victims of aggression to report their aggressors, it is essential to understand the best conditions for the creation of local pro-women institutions.

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