

Contribution of Municipality-level Socio-Economic and Cultural Factors on Violence against Women in Colombia: Does Geographic Setting Matter?

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Abstract

In this study, we explored potential associations of socio-cultural and economic factors with the level of violence against women using a municipality level panel data set from Colombia from 2006 to 2014. We found lower education, violent environments, and higher child born rates to be associated with a higher risk of violence toward the woman. We also discovered through a spatial econometric analysis that geographic setting and cultural patterns matter in the intensification of gender-biased violence in Colombia. Finally, through a discussion between the results obtained and some qualitative approaches, we presented a transition proposal from patriarchal behaviors to the empowerment of women by the generation of community processes of popular education, social pedagogy, and female participation in the formulation of public policies, because as we detected, and as other studies have shown, education is a fundamental factor for the reduction of gender violence, causing positive impacts on homes, childcare and their environments.

Key words: Gender violence, education, socio-culture, economy, political violence

1. Introduction

Violence toward females is a matter of shame that remain on a global scale. This topic of concern persists over women both in developing and developed countries, and it affects women without discriminating against their nationalities or social stratum. For instance, in Europe, one of the most developed continents in the world, one in ten women reported to have suffered online harassment since they were 15 years old (for Fundamental Rights, 2014), and additionally, in the United States, %23 of undergraduate women reported to experience sexual misconduct (Cantor et al., 2015). Violence against women seems to be not just an issue that poor societies have to deal with, and there is a numerous list of literature that highlights besides economic characteristics, other important factors that might influence societies to intensify or to decrease cases of abuse against women (Kiss et al., 2012) (Heise & Kotsadam, 2015). Common characteristics in neighborhoods seem to have a direct effect on the proliferation of abuse over women in various ways.

To begin, socioeconomic characteristics seem to be factors that determine the proliferation of abuse over women. Many studies analyze the possible connection between economic indicators of employment, literacy, and salary, which may be linked with the status of women and their communities, and consequently, the rates of violence toward the female. Dildar (2020) states, at an individual level, those women with a higher income than their partners, seem to have an empowerment position in their relationships, and therefore they could be less vulnerable to suffering abuse from their partners. In his study over turkey in 2008 and 2014, he reveals that women with economic independence are less susceptible to suffer partner violence than the ones who are not economically independent by 9,7. Dildar (2020) suggests that this may occur because women gain the power of barging household roles. Conversely, Heise and Kotsadam (2015) expose that neither the educational background of women nor the unemployment rates were linked with the rate of violence against women in a study in Sao Paulo, Brazil. Under Gender-related macro factors, they sustain that in many countries, higher levels of literacy in women and higher rates of women involved in formal jobs may play a strong negative relation toward the risks in these countries to suffer cases of partner violence.

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Socioeconomic factors that may be related to the deprivation of an area do not seem to have a significant relationship with the level of violence against the women. Kiss et al. (2012) affirm that not all the hardship that poor people lives are related to poverty, and that there are cultural behaviors that affect more directly problems of violence against women.

Therefore, it seems to be logical and rational to use qualitative social-cultural characteristics to find correlative relations that improve the banishment of victimization toward women. Bates et al. (2004) remark the importance of women in Bangladesh to be educated in order to decrease her chances to be a victim of violence. They say that women with education improve their status and opportunities in their marital household, and decrease their position of dependency to a male by having more chances to get a good job, getting a better salary, and therefore, feeling more confident to demand their rights than the ones who are not educated. Koenig et al. (2003) explain how in societies with no conservatives or non-Muslim ideologies, higher socioeconomic factors and enriched education may be related to lower risks of violence in rural communities of Bangladesh. However, in conservative communities, this result may turn all the way around. This may occur because, in societies where cultural attitudes and manhood behaviors are marked, the socioeconomic improvement in the woman may be seen as dishonor to the community traditions, therefore, instead to decrease risks of violence against the woman they increase it, as the backlash model sustains. Under an individual level, Uthman et al. (2009) establishes that socioeconomic factors may shape the attitudes of a society toward violence against women. They affirm that uneducated men excuse violent acts against women. Also, they affirm that uneducated women are more likely to justify violence toward females than uneducated men. Nevertheless, at a neighborhood level, there are no conclusive results about these relations (Uthman et al., 2009).

In addition to socio-economic aspects, sociocultural characteristics related to beliefs, attitudes, and perceptions, as Heise and Kotsadam (2015) affirm, may be direct causal factors in the improvement over women's overall status, and consequently over the woman rate of abuse than just several monetary measures such as Gross Domestic Product (GDP). Some societies have adopted acts of violence against women as normal and accepted cultural behavior. The lack of awareness in societies, especially in women, about gender violence as a crime makes harder the actions of institutions for prosecuting this illegal act. For example, in Nigeria, a study reveals that acts of violence against women have been largely normalized in the society, making difficult to report and handle them (Asagba, 2014). In South Africa, macho attitudes against women are quotidian and pronounced that the efforts from institutions for changing these attitudes through educational workshops for men seem fruitless (Graaff & Heineken, 2017). Heise and Kotsadam (2015) observe that cultural norms of male authority and attitudes of justifying wife-beating might have a direct relationship with the rate of violence toward the female in many countries. Burke et al. (2006), under a neighborhood analysis, state that women's beliefs about intimate partner violence (IPV) and cultural norms may have a strong relationship with the cessation over cases of IPV in the suburb and urban areas from Baltimore, Maryland. Conversely, they say that macho cultural attitudes and ignorance about IPV are decisive factors that might perpetuate the violence toward females. Attitudes of neighborhood appear to be a shaping mechanism toward individual attitudes about intimate partner violence against women (IPVAW) (Uthman et al., 2009). Beliefs and stigmas about household roles in patriarchal societies could be also an important cultural aspect in gender norms that, besides creating an economic dependency from the female to the male and less power in final decisions, seems to isolate house women from the society and the community support. Burke et al. (2006) assert that isolation and dependency are likely related to male control and mistreatment against the woman. This might be explained better under the theory of household bargaining that asserts that the power of negotiation of the woman is less or null when they don't contribute financially to their house, and that the probabilities of the woman to suffer abuse are higher than women who are not financially dependent. Women in isolation may be missing the advantages and psychological support from a community network. Burke et al. (2006) believe that communication network might play an important role in the victimization of women. This may occur because women who are more engaged in activities with their neighborhood. They could obtain more assistance from their community, and consequently, might be less vulnerable toward acts of violence against them.

Additional to the dependent bounding originated for the isolation of women from communities, another social-cultural factor that might increase the dependency of women toward their partners is the existence of kids in their family structure. Young kids seem to be a stabilizing characteristic that strongly influences the cease of IPV (Burke et al., 2006). Young children look to be a positive factor toward the cessation of violence against women, and families with a larger number of children seem to have a lesser risk of witnessing violence against the woman. This may happen because the male partner's tendency to abuse their female partner could be diminished. After all, men are more concerned about the bad example that they could be for their kids if they beat their mother.

Also, the men will take into consideration that they don't want to cause negative physiological effects over their children. A study from Jakiela et al. (2020) called "Do Daughters Change Fathers' Gender Attitudes?" the authors say that cultural male behavior over the women may be modified by the fact of having a daughter. On the other hand, kids could not just be agents of change over the sexism attitudes in parents, but silencer agents for which women do not denounce.

Mothers with young children might be more financially and emotionally dependant on their partners than the ones who don't have kids. The opportunity cost of the woman for reporting violence acts may be higher once they have little kids than when they do not have young children. For example, in manhood communities, the women are judged and not taken seriously when they do not have a male next to them and their kids, and judgments against single mothers and kids rise because they are in a single-parent family structure or out of a conventional family. These cultural stigmas could be restraining women from speaking and reporting violence cases against them. This silence could be removed through education programs that raise awareness in community members to identify abuse and respond effectively and to help prevent these crimes from occurring in communities. Public awareness is important for the diminishing of the rate of violence against women (Burke, 2006).

Furthermore, Neighborhoods with culturally vulnerable environments may have higher rates of violence toward females. For example, ecological characteristics seem to be related to the cessation of abuse against women. Koenig et al. (2003) observe that cities with environmental risk factors like flooding and other ecological characteristics that expose a city to hardship situations might be related to economic isolation, the detriment of the status of women, and therefore, higher domestic violence against the woman in those areas. Also, areas with the cultural pattern of violence and crime seem to be tended to be more susceptible to acts of violence against women. Burke et al. (2006) point out that violent attitudes and behaviors could be factors that might perpetuate violence against the woman. They also bring out behavior in communities like drunkenness, as curious indicator that might be perpetuating the violence against women in neighborhoods. According to Burke et al. (2006), Public drunkenness could be connected as a negative social attribute in a neighborhood and might have repercussions over rates of violence toward females. They say that societies where the consumption of alcohol is a habitual habit in men might also shed a light on the potential environment of violent behavior against the woman.

This paper presents the findings of other potential and more varied determinants in neighborhoods that may have an impact over rates of violence toward women. We use municipal characteristics- beyond economic indicators, on rates of violence against women; specifically, education rate, health coverage, child mortality rate, political violence risk as well as female politicians. Kiss et al. (2012), and Heise and Kotsadam (2015) acknowledge analysis on the relationship of economic characteristics and violence toward women should be broadened to include numerous socio-cultural factors that may interact directly with the possibly affect change on rates of violence against women. Therefore, the primary goal of this research was to explore the relative importance of those neighborhood/municipalities characteristics to the rate of violence against the women, knowing as violence as any action that could private of freedom and cause death, hurt, physical, sexual, patrimonial, or economic suffer to the woman (Official).

2. Background

Gender violence has been a problem that affects women around the world and in some cases could be a continuous and inevitable situation in their everyday life. Even though this kind of violence occurred in a big magnitude, it was not until the 1990's that gender violence was declared as a real topic of concern and study. After then, movements and initiatives such as the 1993 World Conference on Human Rights in Vienna, the Inter-American Convention on the Prevention, Punishment, and Eradication of Violence Against Women "Convention of Belem do Para" (Adopted at Belém do Pará, Brasil, on June 9, 1994), The Declaration on the Elimination of Violence Against Women (abbreviated as DEVAW) (adopted by the United Nations General Assembly in 1993), and The 1995 Fourth World Conference on Women in Beijing (Guerrero, 2002).

One of the above-mentioned movements is the DEVAW that generates a starting point for eradicating the violence against women in the world in 1993. However, even with the effort realized, more than 20 years after, acts of violence toward females still happen at high rates. These rates are registered by reports of global and regional estimations of violence against the woman like the one elaborated by the World Health Organization (WHO), and The research from The London School of Hygiene and Tropical Medicine (LSHTM) in South Africa that records the prevalence and effects of partner violence and non-partner sexual violence in the health (Chaib et al., 2013).

This report reveals data of violence against women which notes that about 35% of women in the world have experienced physical or sexual violence by their men partner or men out of their intimate life, and shows that about a third of the world female population who have been involved into a relationship have experienced violence by their sentimental partner.

Furthermore, according to observations of *The World's Women 2015* by The Department of Economic and Social Affairs of the United Nations, women seem to be a vulnerable part of the population that suffer physical, sexual, physiology and economic violence the most. Violence is a problem that affects women regardless of their salary, age, or education, and that leaves the aftermath in its victims.

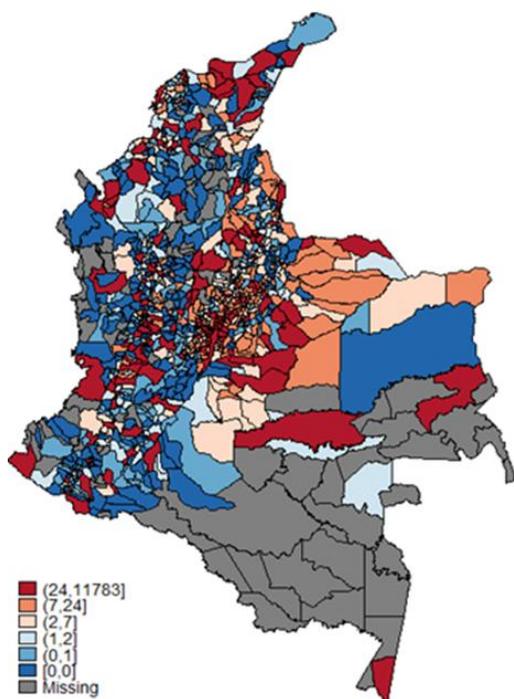
Normally, although these kinds of violence decrease when women get older, there are still found violent cases in this part of the women population. Gender violence seems to be a leading cause of death among women, and this is known as femicide. Femicide is a term introduced as a discussion topic in *The International Tribunal on Crimes Against Women (ITCW)* in 1976, and later Diana Russell (1990) defines it as "the murder of women by men motivated by hatred, contempt, pleasure, or a sense of ownership over women" (Russell & RADFORD, 1990).

Statistics from the Commission of Latin America and the Caribbean (CEPAL) display that in average 12 women are murdered per day, being Central America the region with more women affected by this crime, therefore, 15 countries (Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, the Dominican Republic, and Venezuela) out of 46 countries count already with laws that penalize femicide (Rico, 1996). In 1994, the convention of Belem do Pará was approved, and under a Latin American context, this convention restated that the violence against women is inflicted both in public and private scope, also, it recognized that any violent act toward the female inside a home is a punishable crime.

Measures of control have been adopted in Colombia under a legal framework that implements laws that promotes women rights. For example, the Colombian National Congress issued the Law 1257 of 2008 that guarantees the norms of sensibilization, prevention and sanction against any form of violence and discrimination toward women. This law defines Gender violence as any action that could cause death, hurt, physical, sexual, patrimonial, or economic suffering to the woman, and delineates Gender violence as the threats and privation of freedom. According to the definitions above-mentioned, gender violence could be understood as any aggression, both under sentimental relationships and out of sentimental relationships, against women by men. Therefore, single, married, divorced, or widowed women may experience gender regardless their marital status, however, this crime is commonly seen in marriages or cohabitation. Home are common places where abuse toward females happens most of the time, and acts of violence occur at home are called domestic violence. Domestic violence may happen because relations of power historically interweaved. The minister of health considers gender violence as any action that is developed from asymmetric relations of power that consider everything related to men more valued than the things related to women (Ministry of Health and Social Protection of Colombia, 2006).

García Quintero et al. (2014) state that the Law 1542/2012 from The Constitutional Court of Colombia guarantees the protection, disciplines and eliminates the prosecution and reconcilable attribute that crimes against the woman may have. They find that the population with lower resources reports more cases of violence toward the female. The authors say that communities with higher rates of alcohol consumed, and where is seen a higher economic dependency from women to their partners are persistent variables detected in the reports of violence toward women.

The National Institute of Legal Medicine and Forensic Science in Colombia is the entity in charge of the control and surveillance acts of violence toward women in Colombia, and where we selected the data for this study (see figures 1 and 2). In the figures 1 and 2, one could see that the share of reports for violence against women was very low for the years having on a count in this study. At least 209 out of 1116 for de 2007 (1090) municipalities do not record any data, and only 82 of the ones who register data have zero denounces for violence against women. Nevertheless, one could observe that this rate of reports has been changing over time, and even if this rate is small nowadays, we could see a slight increase in the percentage of denounces for abuse against women in Colombia.

Figure 1*Cases of Violence against Women, 2006*

Note. Reports of violence in Colombia per municipalities in 2006 and 2014.

3. Methodology

In this analysis, we run our regression for the first time under pooling, fixed (within), and random (between) effects models. The Pooling model ignores the structure of cross-sectional data, therefore, invalidated the null hypothesis of no autocorrelation between the error terms. Fixed effects (a measure of associations) can be calculated through individual and temporal fixed effects. In individual fixed effects, the intercept term α_1 collects the differences within each municipality. In temporal fixed effects, the estimators take in count the constant variables within municipalities and gather in the intercept term α_1 the variation over time.

The equation is defined as:

$$Y_{it} = \beta X_{it} + \alpha + u_{it} + s_{it} \quad (1)$$

Where Y_{it} , the dependent variable; i is the municipality, t is the time, β is the coefficient of the independent variable, X_{it} is the vector of independents variables, α is the intercept unknown for each municipality, u_{it} is the residual between the municipalities, and s the error between the years per each municipality i .

Regarding Random effects, the constant term changes through the estimation for each of the municipalities, and the random estimator is aleatory with an error component that depends on the i , municipality, but it is still constant over time.

Additionally, we checked for a correlation between the regressors and the individual effects by using the Hausman test, and we found that in our study, fixed effects are more efficient than random effects. We also run the Pesaran CD test for cross-sectional dependence in panels and Baltagi and Li test (Croissant et al., 2019). The first test allowed us to see evidence of error cross-sectional after the test displays the residuals from separate time-series regressions, and the last test permitted us to test no serial correlations and no individual effects in the model.

Finally, we used a spatial econometric model. The purpose of estimating a spatial econometric model was to verify the existence of cultural effects that determine the violence against women, for 1116 municipalities of Colombia, between 2006 and 2014.

We analyze potential associations such as education of women with men, and the Child Born Rate (CBR) with the violence against women through econometric estimations that allow the creation of spaces of social discussion. The model of spatial distribution permits to define if public politics, which are created with the purpose of decrease rates of violence toward the woman, should be executed from local public administration, or on the contrary, due to a probable existence of a cultural effect, from a national intervention through neighborhood status. According to Elhorst (2014), the cost of ignoring the spatial dependence in the dependent variable and/or in the independent variables is relatively high, so much so that the econometric literature suggests that leaving out spatial consideration can be considered as a variable omitted from the equation.

4. Data

This study used data from 1116 municipalities between 2006 and 2014 in Colombia. Municipality-level variables were constructed through the report published by Legal Medicine, the Electoral Observation Mission (Spanish acronym, MOE), and the report of the results of the electoral election for mayors between 2007 and 2011 in Colombia, which is published by the National Registry of Civil Status.

Our analysis included five exposure municipality-level variables (see table 1), and the outcome variable. For our outcome variable, which is a multinomial variable, we used 3 possible scenarios for the woman at the level of municipalities: (0) women have never suffered violence, (1) women have been vulnerated once, or (2) women have been vulnerated twice or more times. This variable was elaborated from the number of reports of violence against women per department (Departmental Ambassadors for New Employees, DANE). For our exposure variables, we considered municipality socioeconomic, sociocultural, and sociopolitical variables in this study. Under socioeconomic variables, we analyzed the education rate and health coverage. The variable of education was measure as the ratio of women to men that culminated their elementary and secondary education per 1,000 inhabitants. For this variable, we only took into account the level of primary and secondary to avoid any bias that the study of undergraduate levels could bring to the research. Since the Colombian Health System is universal and mandatory for everyone regardless if the person is under a contributory scheme or not, everyone is entitled to the same benefits (ILO, 2014). Health coverage seems to be an important socioeconomic variable that influences positively over the status of the woman because women with health coverage besides medical assistance, they enjoy of cash benefits in case of illness and maternity leave that the ones who have not reached the coverage. Additionally, women with health coverage may also have higher probabilities to be enrolled in a formal job (ILO, 2014). Also, Health coverage might be a reliable variable proxy for describing the sociocultural environmental engagement and the low level of isolation in women who have the health coverage may have over the ones who do not have health coverage. Under sociocultural variables, we analyzed child mortality rate, born life rate, and political violence risk. Being the last one a measurement that reflects risk factors for violence due to the presence of guerrillas, Revolutionary Armed Forces of Colombia (Spanish acronym, FARC), National Liberation Army (Spanish acronym, ELN), Organized Crime Bands (Spanish acronym, BACRIM or Post-demobilization paramilitary groups), illegal armed groups, political violence, forced displacement, mass displacement, and violations of press freedom.

Table 1 summarizes the variables used to estimate the model. The dependent variable is the logarithm of the total number of women, which has a total of 95 women victims of gender violence, with a minimum of 25 and a maximum of 24,230 among the 1,116 municipalities in the sample. We estimated the variable from the logarithm of the variable in order to decrease heteroscedasticity problems in the variables. Thus, we obtain a mean of 3.73 for the sample with a minimum of 2.17 and a maximum of 10.37. In the figure 3, one can observe how the dependent variable has a greater number of cases exposed for the year 2011, despite of seeking an explanation in changes in the laws or modification of reporting methods for gender violence in that period of time, we did not found reasons of the why in the 2011 the sample differs from the others.

Table 1*Variables and Data Sources for Each Municipality-Level Variable*

Variable	Definition	Data Source(s)
Educational achievement	The ratio of women to men that culminated their elementary and secondary education per 1,000 inhabitants	National Ministry of Education
Child Mortality Rate (CMR)	Number of children dying under one year of age, divided by the number of live births during the year, multiplied by 1,000	DANE
Crude Birth Rate (CBR)	Total number of live births per 1,000	DANE
Political violence risk	Measure that compiles of risk factors for violence due to the presence of guerrillas FARC ^a , ELN ^b , BACRIM ^c , illegal armed groups, political violence, forced displacement, mass displacement, and violations of press freedom Proportion of women included to the Colombian.	Electoral Observation Mission
Health coverage	The proportion of women included Colombian healthcare.	Ministerio de Salud y Protección Social

Note. ^aFARC, Spanish acronym stands for Revolutionary Armed Forces of Colombia.

^bELN, Spanish acronym stands for National Liberation Army.

^cBACRIM, Spanish acronym stands for Organized Crime Bands or Post-demobilization paramilitary groups.

In Colombia the average child mortality rate is very high, even if we observed at the whole sample, there is a maximum of 91.97 children between 0 and 5 years old for every 1,000 live births. The same happens with the critical measure of economic activity, analyzed through the proxy variable of health coverage, which reflects that in some municipalities there are no women affiliated to the health service of the contributory regime that at the same time may conduct to the no registers of women workers per municipality.

In recent years, in Colombia, the number of live births has decreased, but the rate is still high, being 8 the average of children born per 100,000 inhabitants. However, the average of children mortality rate may be affected by the precarious health and nutritional conditions that many of the municipalities in Colombia have, especially those municipalities that are in remote departments or vulnerable populations such as indigenous people.

5. Results

Table 2 explores different models that explain why reductions in violence toward women might accompany sociocultural, economic, and political development. Each column represents a separate estimation of violence against women. With models 1, 2, 3, the association between the level of education and violence against women has a negative, robust, and significant association (-0.491, $p=0.093$; -1.770, $p=0.082$ and -1.998, $p=0.084$). As education level increases the rate of violence toward female declines. Nevertheless, this relation turns all the way around in model 4. This last model, which is a cross-sectional estimation through temporal fixed effects, shows a positive and significant association between education and violence toward women (0.353, $p=0.084$). This relation suggests that the residual of this estimation may be hiding characteristics of an educational system that could reinforce gender bias in schools. Additionally, for the variable education, we find the existence of spatial dependence between the municipalities analyzed. That is, the rate of education in the municipality j may affect the level of violence in the municipality i . This finding brought out the need of bringing our study under a spatial econometric analysis.

Child Mortality Rate (CMR) and Crude Birth Rate (CBR) are used as control variables in this study. Concerning the association between CMR and CBR with violence against women, we find a robust and significant association for each of the models ($p<0.001$). In column 3, under a model of fixed effects, the negative correlation for CBR per municipality (-0.034, $p=0.009$) confirms that the number of live births increases as the violence toward females decreases.

Table 2*Analysis Multivariate effects model: Violence against Women*

	<i>Dependent variable</i>			
	Pooling estimation (1)	Between estimation (2)	Within estimation (3) (4)	
Log Education Rate	-0.491*** (0.093)	-1.770*** (0.082)	-1.998*** (0.084)	0.353*** (0.084)
Child Mortality Rate	-0.019*** (0.001)	-0.013*** (0.002)	0.016** (0.003)	-0.018** (0.006)
Log Born Rate	0.184*** (0.007)	0.060*** (0.008)	-0.034*** (0.009)	0.184** (0.000)
Political Violence Risk	0.079*** (0.007)	0.004 (0.006)	-0.020*** (0.006)	0.0079*** (0.006)
Health Coverage	0.005*** (0.000)	0.001*** (0.0002)	0.0002 (0.000)	0.004*** (0.0002)
Constant	3.707*** (0.021)	3.780*** (0.038)		
Observations	10.044	10.044	10.044	10.044
R	0.184	0.053	0.068	0.238

Note

*p<0.1; **p<0.05; *** p<0.001

In other words, when the violence against women rises, the number of live births droops. Conversely, in column 4, under a model of time fixed effects, this association turns in a positive correlation coefficient (0.184, p=0.006), which may corroborate how cultural aspects in a community could undermine women status for being a mother. That is, women with kids may prefer to be with their abuser partner than to face rejection from a society where being a single mother or a kid without a father figure may bring reproach.

Political violence risk, as it is described in table 1, is a variable that compiles risk factors for violence per municipality. In table 2, model 3 (column 3), under temporal fixed effects, political violence risk reflects a robustly and significantly positive correlation coefficient with the level of violence toward the female (0.079, p=0.006). This coefficient shows that violence against women rises as the political violence risk increases.

Table 3*Spatial Econometric Analysis: Violence against Women*

	Dependent Variable						
	Log Gender Violence						
	SDM		SEM			SAR	
	Between (1)	Within (2)	Pooling (3)	Within (4)	Pooling (5)	Between (6)	Random (7)
Log Education Rate	-1,231*** (0,0715)	-1,245*** (0,066)	3,738*** (0,05364)	-0,260*** (0,04712)	0,5162*** (0,0182)	-0,26585*** (0,042)	0,2509*** (0,0318)
Child Mortality Rate	0.0083*** (0,001)	0.008** (0,002)	0,323*** (0,0841)	-0,0010 (0,0021)	0,221** (0,0800)	0,0011 (0,001)	-0,24*** (0,0438)
Log Born Rate	0.0369*** (0,007)	-0.019** (0,007)	-0,01*** (0,000)	-0,0030 (0,0048)	-0,018*** (0,000)	-0,0021 (0,004)	-0,00*** (0,001)
Political Violence Risk	-0.0050 (0,005)	-0.0169 (0,0045)	0,181*** (0,005)	-0,01*** (0,0033)	0,177*** (0,0057)	-0,015*** (0,003)	0,0207*** (0,004)
Health Coverage	0.000*** (0,000)	.000183 (.0001)	0,074*** (0,006)	0,0000 (0,000)	0,074*** (0,006)	0,0000 (0,000)	-0,010** (0,0033)
Spatial Wx							
Log Education Rate	-0.192** (0,073)	0.1630 (0,067)					
Child Mortality Rate	-0.040*** (0,001)	-.00329 (0,002)					
Log Born Rate	0.0770*** (0,009)	0.028 (0,009)					
Political Violence Risk	0.007 (0,005)	0.001 (0,005)					
Health Coverage	-0.001*** (0,000)	-0.000 (0,000)					
Spatial coefficients							
P	0.7129*** (0,004)	0.754*** (0,003)	0.876*** (0,012)	0.9666** (0,005)			
Θ	-1769*** (0,00313)						
Π						0.7805*** (0,307)	
Λ				0.8712*** (0,03)	0.959*** (0,005)	0.959*** (0,005)	

Note.

*p<0.1; **p<0.05; *** p<0.001

By contrast, (column 4) in model 3, under fixed effects, the correlation is inverse (-0.020, p=0.006). This may occur because the illegal acts from these groups may relegate to the less important acts of abuse against women at not just in the municipality but inside the illegal organizations. Our analysis is based on the model fixed effects, which is defined by the (column 3 and 4) model 3, in the table 3.

After running the Hausman Test, this model seems to be the correct one for our analysis. However, we display the entire model due to all the variables reach statistical significance at the p<0.01 level. Once we break down the table 3 and test the model with Pesaran CD test for cross-sectional dependence in panels and Randomized W test for spatial correlation, we calculate the model spatial error model (SEM), Simultaneous autoregressive (SAR), and Spatial Durbin Model (SDM) (see table 3) which was estimated with the matrix the distance-based neighbors 0 to 1.49762 distance units.

As shown in table 3, columns 2 and 3 express the Spatial Durbin Model (SDM) with fixed or random effects. In this model, independent variables such as educational achievement and Child Born Rate (CBR) do not show any variance concerning the analysis in the cross-sectional data. Consequently, our study focuses on the effects of spillover over the level of violence against women of the nearest neighbor.

The coefficients for the spatial estimation of the Durbin Model with fixed effects or within (see column 2) do not reach statistical significance at the $p < 0.01$ level as the most of the coefficients for the same model but with random effects or between (see column 1) reach. Therefore, our analysis focuses on the coefficients of Educational achievement, and Child Born Rate (CBR) with random effects.

In Educational achievement, its negative and significant coefficient reaffirms that the increment in the percent of educated women from municipalities that are less than 1 Km of distance apart of each other decreases the violence toward women until a 20%. Regarding the Child Born Rate (CBR), the increment of 1% in the number of live births from municipalities that are less than 1 Km of distance apart from each other increases the violence toward women until a 4%. These findings may be explained because the demographic pressure of the area is a determining factor in the level of violence against women. The effect collected by the spatial coefficient ρ is significant, revealing the positive spatial correlation between the violence toward women in the municipality i , and the violence toward women in the municipality j when these municipalities are 1.45 miles apart of each other. This spatial relation corroborates that the level of violence in a municipality toward the female is a concern linked to cultural attitudes and behavior (Burke 2006, Uthman 2009 & Heise 2015), normalized in the Colombian culture with a statistically significant positive correlation of 70% in the global spillover effects.

According to the table 3, in the columns (3) and (4), the spatial effect collected by ρ reflects that the residuals of the estimations are positively correlated. This correlation allows us to examine other kinds of factors of areas that are not having on account for this study, but some characteristics determine the violence against females with a positive relation. We find that the results of the variables and the direction of the coefficient of the variable log education rate are the same. The magnitude declines without changing the impact in terms of the analysis, and this analysis change once one observes the column 3 and 5 for the same independent variable, education, and the relation of this variable is positive with pooling and fixed effects. This positive association between education and level of violence is estimated in a model that examines the rate of education of the nearest neighbor, and it could be explained due to the spillover effects. We consider that the variable education more than being limited by the knowledge that pupils acquire in a classroom, education goes further, and it is measured by cultural factors that guide the behavior and attitudes of the society. In the case of gender violence, cultural factors may get normal inside the classrooms and this becomes a space correlation.

6. Discussion

This study suggests that between 2006 and 2014 were many sociocultural factors at a municipality level that help to predict the persistence of the violence against women. That is, economic factors are not the only propellant agents of discrimination toward the women, but, conversely, there are characteristics in patriarchal societies like, academic performance, birth rate, and risk of political violence that intervene in this problematic. All previously mentioned are not just circumstantial reasons, but they are by themselves factors that have built and driven sexism behaviors and patriarchal discourses in front of violence against women over time.

According to Segato (2003) cases of violence against women are originated from social structures. He states that even if a country proclaims to be a place with equal opportunities for its citizens, in Colombia and as the results displayed, there are regions where violence toward woman is related with the culture, diversity of thoughts and behaviors that feed masculinity conducts, and historical consequences over mistreatment of women. This study exposes that the constraint of economic, social, and political circumstances may lead to violent conduct that determines the patriarchal behaviors. (Segato 2003, cited by Femenías & Rossi, 2009)

One flaw of this study was the difficulty of situating historical information of the gender violence in Colombia that allowed comparing the data of violence in context, which, as Segato points out, may prevent setting a historical perspective of violence against women. However, some socio-cultural factors affect in the patriarchal discourse, which does not recognize the men as a transgressor, but as normal behavior of power.

Furthermore, Paredes (2015) states that violence toward women comes from social bases, and he points out that these bases are the main system of oppression in the relationships between woman, man, and nature. This view differs from the conventional feminist movements that sometimes tend to demean women and put them against of man. Nevertheless, as general knowledge, man and woman seem not to be in the same position regarding to their opportunities and rights. According to this study, in Colombia, social biases are not the only factors responsible for cases of violence against women, but systematic reasons that have allowed inequality not just toward women but toward the whole society. Therefore, alike to the studies of Diaz (2015), this paper exposes that even if men seem to be in prestigious positions or favorable conditions than women, there are economic, racial, cultural, academic, and social stratum inequalities between men in the society.

Also, this study identifies that characteristics like having a certain level of education, being a mother, or living in a place where there is political violence, are part of socio-cultural factors that are linked with levels of violence toward woman, and that at the same time affect the building of equality social bases in a community.

That is, because patterns of violence from the political environment may be replied in a patriarchal logic in the society, which could be seen as an act of acceptance toward a language of power of the man over the woman in a hegemonic patriarchal system. We also found that discrimination against the woman is a problem that seems to be part of a vicious cycle of social mistreatment that comes since political processes, where a woman seems to lack of opportunities either of participating or formulating educative, public health, and safety politics, and maybe perpetuated to the treatment toward a woman in the rest spheres of society.

Additionally, this study allows us to identify the importance of education over the wellbeing of women. Education seems to be a sensible characteristic that affects the increment/diminution of cases of violence against women in the municipalities, in Colombia. For example, even if the number of women with education is small in a municipality, the rate of violence against women in that municipality tended to decrease drastically. This negative relation between education and violence toward women is found in other studies where the level of violence decreases at the same time once the level of education of a person increases. (Bates et al., 2004) (Koenig et al., 2003) (Uthman et al., 2009) Thus, education seems to be an essential factor in the reduction of mistreatment toward women. Especially in Colombia, where there is a limitation in the number of people who can have access to an education system. That is why it is important to search for collective ways of communitarian education for a woman from popular educational systems and to learn from collective education between women. In this way, we would be able to get a deeper understanding of the inverse relationship between education and rates of violence against women, and to reduce the misunderstood language of power, which some societies are taught and raised with. Under this relation, Paredes (2015) states from the Abya Yala that for generating spaces where a woman could think through the participation, is important in non-euro-westerns cultures to reduce the level of uneducated people and acknowledge that communication comes through the speeches that build the memory about the feeling and concept of being women.

Based in our findings of the influence education in the level of gender violence in Colombia, we see the imperative need of rethinking about educational systems by seeing them from a community perspective, and taking them as a tool of empowerment that generate a multiplicity of impacts over the relation with other people in a variety of spaces like homes, schools, workplaces, and neighborhoods. Thereby, the action of rethinking may influence parenting factors and survival agents in children, through factors like CMR and CBR, as it is revealed in this study. We found that rates of gender violence may affect fundamental changes in the structure of Colombian families, and therefore, in the infant lives by the dynamic of domestic violence that could affect the survival of newborns (Heaton & Forste, 2008) (Ahmed et al., 2006).

As this study shows, the education by itself is not a decisive factor that prevents a woman to suffer violence (Heise & Kotsadam, 2015) (Koenig et al., 2003) but its structure and purpose without gender bias influences in the autonomy of the women, therefore, in the decrease of violence against them. However, community processes should go further of the government guideline because it is just there where women empowerment may play a vital role in the transformation of the territory and cycles of patriarchal mindsets. Political and Social discussions should appear during environments of learning and through reflexive spaces, where traditional paradigms in the pedagogy could be debated, and seen further than unidirectional processes that may make possible the analysis of the context of historical elements, and the reality of them nowadays.

It is important to acknowledge that the traditional system of education instead of being a tool of reinforcement of the value of women, traditional systems could degrade it. Thus, from schools, gender bias attitudes in teachers or environments of institutions may create mistreatment toward women in a community, and it might increase the vulnerability and risk of violence against them. (Zittleman & Sadker, 2002)

We found that factors like absences of safe environments where newborns are being raised, and the high risk of birth between mothers that have suffered violence because of their lack of good mental and physical health, meaning a deteriorate of healthy family structures. Nevertheless, children may also become a mitigating factor of violence against women (Burke et al., 2006) due to that, sexism attitudes by fathers allow the threat and control over women. Neither one of all the above factors is a reasonable condition of acceptance toward any kind of expression of violence against women, but conversely, knowing about these potential factors of gender violence should move us to look for new ways of solving problems without appeal to gender violence.

We identified that the coverage of health could be an important instrumental factor for analyzing the impact of violence toward women in Colombia. Nonetheless, there is no concise information at the municipality level, or even some Municipalities lack of data, which limits our study.

Along with the literature review, the pattern of violence in municipalities and the risk rate for political violence are related to a perpetuation over cases of violence toward women (Burke et al., 2006). We discover, in this study, a negative relation between the risk rate for political violence and the rate of violence against women. This rare association may occur because in many municipalities had the presence of illegal groups, for instance, the FARC or paramilitary, who execute actions of control over a territory and people, in other words, who punish transgressors of women according to their idea of justice without consideration for the role of law enforcement authorities. Additionally, we found that some municipalities do not have an effective route of attention for women who have experienced violence, and if they exist, there is not a clear knowledge about them, and also public institutions are fragmented by the same presence of illegal groups. That is why the number of reports of violence may not reflect the actual number of these cases in every municipality, and why vulnerable groups like children and women might be suffering the most cases of aggression inside these illegal groups, as Sanín and Carranza (2017) sustain. In general, as Segato (2014) establishes, territories impacted by internal wars, are places where the burden goes in the majority of times over women and girls, especially in the form of sexual violence. (Cited from Fernández & Gonzales, 2017)

As we expected and as organizations and international institutions acknowledge, cultural factors influence the perpetuation or mitigation of bias behaviors, and consequently, the level of domestic violence in communities. We also found that in this study other characteristics may determine in a certain way the direction of rates of violence toward the women, but it is a reality that the acceptance and normalization of social attitudes that may lead to gender discrimination are critical red light senses toward the increment of cases of gender violence and at the same time a reduction of the reports of these crime.

Finally, these findings point to the need in the activation of processes of citizen participation of women from the collective woman work along with self-management and popular education that promote the knowledge about anti-patriarchal struggles and the empowerment and strengthen of social understandings about potential environments where violence against a woman could occur.

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