

Mobility and domestic violence against women

Keywords: mobility, women, domestic violence

Extended Abstract

The patterns of mobility among women and men differ, with women visiting fewer locations in their daily movements [7]. Factors at the community, household, and individual levels influence women's ability to make decisions regarding their mobility [4]. Socially, control over female mobility is observed from two perspectives: by the woman's partner and by the woman herself. Negative attitudes and controlling behaviors by the partner towards female mobility, often conditioned by domestic responsibilities, can range from mild to severe and potentially escalate to domestic violence if the woman chooses not to comply with the partner's expectations [10, 4]. Under an "agency" approach, which emphasizes empowerment and financial autonomy, women can work towards achieving their life goals such as freedom from domestic violence and greater mobility [10, 4]. This approach describes the phenomenon of violence against women and its causes in terms of social and psychological characteristics of the victim and the aggressor. Education and employment are conditioning factors of violence against women [2, 9]. Education has been identified as a protective factor against domestic violence, as limited access to education increases the likelihood of experiencing violence [12, 6, 11]. Regarding employment, there is no consensus [3, 11]. While women's access to employment can reduce the likelihood of experiencing domestic violence by providing independence and economic autonomy [1, 5], this risk is dependent on the partner's employment status [1]. Female labor force participation can reduce the risk of domestic violence when the partner is also employed, but can increase the risk of violence when the partner is not employed [1].

Given the impact of domestic violence on the routines and lifestyles of women, the hypothesis that higher levels of domestic violence are associated with lower levels of mobility is proposed in this study. This study aims to explore the relationship between female mobility and domestic violence against women in Santiago, Chile, using a novel methodological approach of constructing mobility measures from digital traces of mobile devices. By studying and characterizing the mobility of individuals using digital traces, it is possible to explore human trajectories on a large scale with a high degree of temporal and spatial regularity as reported in previous studies [8, 7]. Using this approach, and computing two gender-differentiated mobility measures, female entropy and number of trips, previous research has observed a gender gap in the urban area of Santiago, Chile, concluding that women visit fewer unique places than men, and distribute their time less regularly among these places [7]. To assess the extent to which domestic violence against women affects their mobility, we calculated two dimensions from geolocated police cases: physical and psychological violence. In Chile, violence against women is concentrated in the family environment, which is divided into two dimensions: physical and psychological. The Chilean National Service for Women and Gender Equity (SernamEG) defines physical violence as any type of physical aggression against women, the strongest form of physical aggression being femicide (in this research we do not consider femicide as physical violence). On the other hand, psychological violence refers to actions that attempt to control a woman with the purpose of making her feel insecure and without control over her life and decisions.

The relationship between mobility and domestic violence was described using the Pearson

correlation index. We evaluated the dependency relationship in an exploratory way with a multivariable regression by Ordinary Least Squares (OLS) considering, in addition to domestic violence, variables related to economic autonomy, such as female education and employment. To ensure robustness and validity of the results, bootstrapping was applied.

The results indicate a significant relationship between female mobility and domestic violence against women. This relationship is observed in physical violence and not in psychological violence, which implies that female mobility decreases in the presence of higher rates of physical domestic violence. Although female employment and education are related to their mobility, our analysis does not provide evidence to conclude that they explain it (Table 1).

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Table 1: Models (dependent variable: mobility).

	Dependent variable: Entropy	Dependent variable: Trips
Intercept	1.8941*** (0.2962)	34.8500*** (7.7316)
Domestic violence	-0.0004*** (0.0001)	-0.0119*** (0.0025)
Female education	-0.0285 (0.0232)	0.0208 (0.6065)
Female employment	0.6700 (0.3334)	0.6162 (8.7023)
R-squared	0.6574	0.6733
R-squared Adj.	0.6231	0.6407
N	34	34

Standard errors in parentheses, x^{***} parameters statistically significant $p < 0.01$ and x^{**} statistically significant at $p < 0.05$.