



## Domestic homicide and other violent crimes: The same or different phenomena?

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### ABSTRACT

This study investigated correlates of domestic homicide (DH) and other violent crimes. Data were collected retrospectively from criminal justice files on 617 persons in Switzerland (DH = 47). Multinomial logistic regressions revealed that, overall, DH perpetrators were more likely to be older, female, married, to have a psychiatric hospitalization history, and to be under the influence of delusions when they committed the crime. In addition, they were less likely to have prior convictions. Furthermore, the characteristics associated to DH perpetrators were more similar to domestic violence perpetrators than those of persons who committed non-domestic offenses. Based on the current sample, data, and methods, DH appears to be better explained by specialist theories than generalist views of crime, suggesting that DH and the homicide of non-family members are different phenomena. Therefore, domestic offenders may require specific assessment and intervention methods. However, replications of this study are necessary to generalize the current findings.

### 1. Introduction

Although homicide rates have been slowly decreasing for more than two decades at the global level, almost half a million people are murdered each year (United Nations Office on Drugs and Crime [UNODC], 2019). Beyond its direct impact on society, homicide has serious psychological consequences on the lives of surviving family members, including anxiety, depression, and post-traumatic stress disorder (World Health Organization [WHO], 2015). A considerable proportion of intentional homicides occurs in the domestic context. In Europe, about 24% of homicide victims are murdered by (ex) intimate partners or other family members and, unlike the rates of other forms of lethal violence, domestic homicide (DH) rates are relatively stable over time (UNODC, 2019). Being a persistent public health and criminal justice issue, the study of DH is of great importance for science and

policy (Corradi & Stöckl, 2014; Moffitt, Krueger, Caspi, & Fagan, 2000).

Since the 1970s, the study of domestic violence (DV) and DH has received increased attention (Garcia, Soria, & Hurwitz, 2007) but there are still gaps in knowledge. Of particular relevance, research on covariates of domestic homicide has produced mixed results, and this topic is underexplored in Switzerland. Furthermore, it has been argued that certain personal characteristics, such as criminal history, may distinguish among subtypes of perpetrators (Holtzworth-Munroe & Stuart, 1994). However, there are few studies on covariates of DH and other violent crimes among persons with and without prior convictions, which could help to shed light on whether domestic homicide is an expression of general violence propensity or whether it has different correlates than other forms of violence (Dixon & Graham-Kevan, 2011; Felson & Lane, 2010; Last & Fritzon, 2005).

Based on the criminal justice files of persons convicted for violent

*Abbreviations:* DH, domestic homicide; DV, domestic violence; NDH, non-domestic homicide; NDV, non-domestic violence.

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offenses in the canton of Zurich, Switzerland, the present study aimed to identify covariates of DH (here defined as an act with the intention to kill a [ex] partner or other family member) and other violent crimes (including DV, non-domestic homicide [NDH], and non-domestic violence [NDV]) among persons with and without prior convictions. Research on the covariates of DH and differences between perpetrators can help to develop theoretical knowledge on this crime and understand which policies for the assessment and treatment of domestic offenders are more appropriate (Armenti & Babcock, 2016; Dixon & Graham-Kevan, 2011).

### 1.1. Domestic homicide in Switzerland

Switzerland has a low homicide rate but the proportion of DHs is high (Markwalder & Killias, 2012, pp. 343–354). The homicide rate in the country is 0.5 per 100,000 inhabitants, compared to 1.0 in Western Europe (UNODC, 2019). However, during the last decade (2009–2018), an average of 51% of the homicides took place in the domestic context (Eurostat, 2020), more than twice as in the rest of Europe (UNODC, 2019). DV accounted for 40% of the violence registered by the police (Federal Statistical Office [FSO], 2020). Among DH victims, 61% were killed by a (ex) partner and 39% by another family member, 75% of them being female (Eurostat, 2020).

According to the report of the Federal Statistical Office (FSO) on homicides recorded by the police (Scheidegger & Darbellay, 2018), between the years 2009 and 2016, 75% of the DH (i.e., consumed and attempted) perpetrators were male and their average age was 41 years. About 90% were part of the permanent resident population, and 57% were Swiss citizens. In the two years preceding the DH event, 21% had been registered by the police, especially for crimes against liberty, life and physical integrity, and property. Similarly, results from the Swiss Homicide Database (Markwalder & Killias, 2012, pp. 343–354) evidenced that, between 1980 and 2004, 74% of DH perpetrators (i.e., family, intimate partners, and love rivals) were male, mostly Swiss citizens, and with a mean age of 38 years.

Domestic violence has been a great concern in the country and several measures have been adopted recently to tackle this problem. For instance, in 2018, Switzerland ratified the Council of Europe Convention on Preventing and Combating Violence against Women and Domestic Violence in 2018 (Council of Europe, 2011) and, in 2021, the government adopted the first official national report on this topic (Federal Council, 2021), presenting a summary of the activities aimed at to prevent escalating violence.

## 2. DH research

Despite the wealth of research on DV and DH, there is still debate about the origins of this phenomenon, which has resulted in alternative views about appropriate assessment and intervention methods for persons who committed domestic offenses (Armenti & Babcock, 2016; Dixon & Graham-Kevan, 2011). There are two particularly conflicting viewpoints about DH: *specialist* versus *generalist* perspectives of crime (e.g., Felson & Lane, 2010; Fox & Allen, 2014; Juodis, Starzomski, Porter, & Woodworth, 2014; Kivisto, 2015).

Specialist theories argue that DH is different than other types of violence. The context of domestic violence makes it unique because the emotional attachment that characterizes familial relationships is absent in other crimes (Auerhahn, 2007; Boyle, O'Leary, Rosenbaum, & Hassett-Walker, 2008; Last & Fritzon, 2005). This perspective defends that gender is the main factor involved in DV and DH. It assumes that men assault their partners and children to maintain their dominance, whereas violence committed by women and children is a usually a response to abusive behaviors of the patriarch (Archer, 2000; Felson & Lane, 2010; Liem & Koenraadt, 2008; Serran & Firestone, 2004). In general, DH is the result of a period of escalating violence (Auerhahn, 2007; Campbell, Glass, Sharps, Laughon, & Bloom, 2007; Kivisto, 2015).

Being an exclusive crime, the characteristics of DH perpetrators were different than other violence perpetrators (Dobash, Dobash, Cavanagh, & Medina-Ariza, 2007). In conformity, specific risk assessment tools (e.g., Danger Assessment; Campbell, Webster, & Glass, 2009) and treatment programs (e.g., Duluth model; Pence & Paymar, 1983) for domestic violence perpetrators have been developed.

On the other hand, generalist perspectives contend that DH and other forms of violence have common motivations, circumstances and risk factors (Aldridge & Browne, 2003; Capaldi, Knoble, Shortt, & Kim, 2012; Felson & Lane, 2010; Graham-Kevan, 2007; Last & Fritzon, 2005). They argue that the criminal behavior of most domestic offenders is not limited to domestic offenses but rather includes violence against non-family members and a variety of other crimes (Moffitt et al., 2000). Therefore, persons who commit DH share well-known characteristics related to general violence (Felson & Lane, 2010). Patriarchy was not the main factor associated with domestic crimes but instead one factor among many others (Dixon & Graham-Kevan, 2011; Stith, Smith, Penn, Ward, & Tritt, 2004; Williams, Ghandour, & Kub, 2008). Under this perspective, assessment tools and intervention programs targeting risk factors for criminal behavior in general (e.g., Andrews, Bonta, & Wormith, 2006) would be effective with persons who committed domestic offenses as well.

Prior research, mostly from North American countries and Europe, gave support to both specialist and generalist perspectives. In favor of the specialist perspective, DH seems to involve more females as victims and offenders, and offenders tend to be older than persons who commit other violent crimes (Cao, Hou, & Huang, 2008; DeJong, Pizarro, & McGarrell, 2011; Eriksson, Mazerolle, Wortley, Johnson, & McPhedran, 2019). Furthermore, persons who committed DH were found to be more conventional, namely regarding their childhood background, marriage, education, employment, substance use, self-control, criminal history, violence, and integration in the community (Boyle et al., 2008; Dobash, Dobash, Cavanagh, & Lewis, 2004; Dobash et al., 2007; Eriksson et al., 2019; Hanlon, Brook, Demery, & Cunningham, 2016; Moffitt et al., 2000; Thomas, Dichter, & Matejkowski, 2011). Clinically, DH perpetrators have been related to mental disorders (e.g., psychotic) but not antisocial personality (Hanlon et al., 2016; Weizmann-Henelius et al., 2012). However, they seem to be more possessive and jealous, violent in intimate relationships, and to specialize in violence against woman (Dobash et al., 2004; 2007; Eriksson et al., 2019). Their crimes were more motivated by emotions (Juodis et al., 2014; Thomas et al., 2011).

Other findings are more in line with the generalist perspective. Several studies found no differences among the personal, family, and community characteristics of DH perpetrators when compared to other violent offenders, namely in terms of their sexist attitudes, alcohol and drug abuse, mental health problems, education, employment, criminal career, violence history, family dysfunction, experiences of abuse, and social disadvantage (Felson & Lane, 2010; Iratzoqui & McCutcheon, 2018; Juarros Basterretxea, Herrero Olaizola, Fernández Suárez, Pérez, & Rodríguez Díaz, 2018; Kivivuori & Lehti, 2012; Loinaz, Marzabal, & Andrés-Pueyo, 2018). Many persons who committed DH were also violent beyond the family realm (Cavanaugh & Gelles, 2005; Holtzworth-Munroe & Stuart, 1994; Moffitt et al., 2000). In addition, women who attacked their partners were not more likely to have been abused or to act in self-defense, suggesting that men and women who commit DH have similar motivations (Felson & Lane, 2010; Kivivuori & Lehti, 2012).

## 3. The heterogeneity of DH

There has been a considerable heterogeneity in the findings regarding covariates of DH. One source of variation across results relates to the fact that different studies have used different comparison groups in their analyses to identify covariates of DH. While some studies compared DH with DV, others compared DH with NDH. As an example, a recent meta-analysis on intimate partner homicide (Matias, Gonçalves,

Soeiro, & Matos, 2020) based on 28 studies showed that, compared to intimate partner violence, intimate partner homicide perpetrators were more likely to have a non-white background, to have a lower educational level, suicidal thoughts, a criminal history, a history of violence in relationships, and to be under the influence of alcohol or drugs at time of the offense. When compared to other homicides, intimate partner homicide perpetrators were more likely to be married, to have completed high school, to be employed, and to suffer from a psychiatric disorder (Matias et al., 2020). Although the outcome of this meta-analysis was partner homicide and not DH, this shows how covariates can differ depending on the studies' methodology. Prior research has compared DH perpetrators with other offenders based on the severity of their offense or the relationship with the victim but not both dimensions at the same time.

Furthermore, most studies have studied DH perpetrators as a unitary group although there is evidence that family violence perpetrators are heterogeneous, namely in terms of their crime motivation, mental health, and criminal history (e.g., Dixon & Browne, 2003; Dixon, Hamilton-Giachritsis, & Browne, 2008; Holtzworth-Munroe & Stuart, 1994; Johnson et al., 2006; Kivisto, 2015). For example, Holtzworth-Munroe and Stuart's (1994) typology of male batterers identified three major types of perpetrators: family only (violence restricted to family members), dysphoric/borderline (psychologically distressed persons who engage in acts of violence primarily against the family but also other criminal behaviors), and generally violent/antisocial (most extensive criminal history and extra-familial violence).

Therefore, a reason for the variation in the results on correlates of DH may be related to the existence of different subtypes of offenders, criminal history being a major differentiating factor. Research shows that people who are violent both within and outside the home may be distinguished from those who commit domestic violence only, family only perpetrators being more likely to be violent as a response to aggression (Theobald, Farrington, Coid, & Piquero, 2016). Furthermore, the majority of domestic violence offenders with prior official criminal records seem to have been involved in nonviolent forms of criminal behavior in addition to domestic violence (Piquero, Brame, Fagan, & Moffitt, 2006). Therefore, criminal history may be indicative of persons who have a general criminal and violence propensity, characterizing a particular group of DH perpetrators. Hence, in this study, separate analyses for persons with and without prior convictions were conducted.

#### 4. The present study

Prior research on DH carries limitations. The binary analyses of DH perpetrators shows a limited and potentially misleading picture about this crime as the results may vary substantially across reference groups. Knowledge on differences in factors associated to DH between persons with a criminal history and those who committed a crime for the first time is further scarce. In addition, most findings come from English speaking countries (Dobash et al., 2004) and thus may not generalize to other contexts. To fill these gaps in knowledge, the objective of the present study was to identify covariates of DH among persons with prior convictions and first-time offenders, when compared to persons who committed other violent crimes in Switzerland. The findings on covariates of DH across subgroups of perpetrators may be useful for the assessment of persons who committed domestic offenses, therefore helping to prevent potential victims (Cavanaugh & Gelles, 2005; Kelly & Johnson, 2008).

#### 5. Methods

##### 5.1. Sample and procedure

This study is a cross-sectional investigation of all violent and sexual offenders supervised by the Office of Corrections of the Canton of Zurich, Switzerland, in August 2000. All offenders were sentenced to a

minimum 10-month prison sentence or court-ordered therapy (inpatient or outpatient), and were in prison, on parole, or on probation. Offenders who committed suicide after the offense ( $n = 2$ ) were also included in the sample. After excluding offenders who committed a non-contact sexual offense ( $n = 1$ ), who targeted an organization or institution ( $n = 37$ ), or for whom the relationship with the victim was unknown ( $n = 13$ ), a final study sample of 617 offenders remained. This total sample was then decomposed by persons with ( $n = 409$ ) and without ( $n = 205$ ) prior convictions to evaluate if variables associated to DH vary across these groups.

Data for this study were obtained retrospectively from official court, correctional, and clinical files of the offenders, which were last reviewed in September 2013. The study was approved as a whole by an external Ethics Committee (Kantonale Ethikkommission Zürich). In agreement with the committee, no informed consent needed to be obtained as there was no direct contact with any of the study subjects. All data were collected entirely from the subjects' files and anonymized prior to analysis.

##### 5.2. Variables

**Dependent.** The outcome variable is categorical and comprises four (mutually exclusive) crimes: (1) DH, (2) DV, (3) NDH, and (4) NDV. Since we were interested in homicides in the family context in general, DH was defined as an act perpetrated with the intention to kill a family member or (ex) intimate partner. Consequently, homicide outcomes (i.e., DH and NDH) comprise consumed and attempted homicide, manslaughter, and infanticide. Violence includes involuntary manslaughter, conduct endangering life, assault, robbery, kidnapping, and sexual assault and abuse. Furthermore, the outcomes were categorized as domestic (i.e., DV and NDV) when the victim was a former or current intimate partner, direct family member, or another relative. Offenses against acquaintances, friends, colleagues, persons known by sight, and unknown persons were classified as non-domestic.

**Independent.** This study includes 11 variables reflecting socio-demographic, clinical, criminological and situational (offense-related) characteristics found to be related with DH in prior research. These variables included age at index offense (in years), gender (0 = male, 1 = female), nationality (0 = foreign, 1 = Swiss), marital status (0 = single, 1 = ever married), having children (one biological child or more; 0 = no, 1 = yes), employment before conviction (0 = unemployed, 1 = employed), prior psychiatric hospitalization (0 = no, 1 = yes), any prior conviction (0 = no, 1 = yes), and situational variables present at the time of the offense, including being under the influence of alcohol (0 = no, 1 = yes), drugs (0 = no, 1 = yes), and delusions (0 = no, 1 = yes; based on forensic assessments, using mental health diagnostic manuals).

##### 5.3. Analyses

In a first step, variables with missing values (between 0.0% and 11.5%; see Table 1) were filled in through multiple imputations using the chained equations method. All subsequent analyses were performed on the imputed dataset. In a second step, to address our research objective, because the outcome variable involves four mutually exclusive categories (i.e., DH, DV, NDH, and NDV), bivariable multinomial logistic regression (MLR) was used. MLR generalizes logistic regression to multiclass problems, thus allowing to compare correlates of the four outcome categories simultaneously. The independence of irrelevant alternative assumption was met when eliminating any of the outcome categories (all  $p$ -values  $>.10$ ). NDV was used as the base outcome (reference group). Therefore, we do not compare DH offenders with DV or NDH as in prior study, but against a group of generally violent persons. The results are presented in terms of the marginal effect (percentage change) of each variable on DH and other violent crimes, with 0 being the base value. The analyses were conducted on the total sample and also separated for persons with and without a prior criminal record.

**Table 1**  
Descriptive characteristics of the sample.

Variable	Missing (N = 617)		Total sample (N = 617)		No prior convict. (N = 205)		Prior convict. (N = 409)	
	n	%	M/%	SE/n	M/%	SE/n	M/%	SE/n
<b>Independent</b>								
age	15	2.4	35.5	0.45	36.6	0.82	34.9	0.54
female	0	0.0	4.9	30	7.8	16	3.2	13
Swiss	47	7.6	59.7	368	55.7	114	61.7	252
married	6	1.0	48.2	297	51.3	105	46.4	190
children	8	1.3	40.4	249	43.7	90	38.6	158
employed	71	11.5	66.7	412	77.4	159	61.5	251
psych. hosp.	57	9.2	31.5	195	23.9	49	35.3	144
prior convict.	3	0.5	66.6	411	–	–	–	–
alcohol	33	5.4	35.1	216	25.8	53	40.0	164
drugs	37	6.0	24.3	150	9.2	19	31.8	130
delusions	33	5.4	7.9	49	12.1	25	5.6	23
<b>Dependent</b>								
DH	0	0.0	7.6	47	14.6	30	4.2	17
DV	0	0.0	12.2	75	18.5	38	9.1	37
NDH	0	0.0	18.5	114	14.2	29	20.3	83
NDV	0	0.0	61.8	381	52.7	108	66.5	272

Note. prior convict. = prior convictions, psych. hosp. = prior psychiatric hospitalization. DH = domestic homicide, DV = domestic violence, NDH = non-domestic homicide, NDV = non-domestic violence. M = mean, SE = standard error; n = number of persons. Presented values from multiple-imputation estimates for the variables with missing information.

The analyses were conducted in the software Stata 15.0.

## 6. Results

### 6.1. Sample characteristics

The characteristics of the sample among persons with and without prior convictions are presented in Table 1. The sample included 617 persons, the majority male (95.1%,  $n = 587$ ) and Swiss citizens (59.7%,  $n = 368$ ). Their age ranged between 15 and 76 years ( $M = 36$ ,  $SE = 0.45$ ) at the time of the offense. At the family level, 48.2% ( $n = 297$ ) were ever married and 40.4% ( $n = 249$ ) had children. Most had prior convictions (66.6%,  $n = 411$ ) and 31.5% ( $n = 195$ ) had previously been hospitalized in a psychiatric institution. Attending to the index offense, 7.6% ( $n = 47$ ) were convicted for DH, 12.2% ( $n = 75$ ) for DV, 18.5% ( $n = 114$ ) for NDH, and 61.8% ( $n = 381$ ) for NDV.

The 47 DH perpetrators had a mean age of 39 years ([19, 59],  $SE = 10.58$ ), the majority were male (83.0%,  $n = 39$ ) and Swiss citizens (61.9%,  $n = 29$ ), and 36.2% ( $n = 17$ ) had prior convictions. The sample's characteristics by outcome category are presented in Table 2.

There were several significant differences between persons with and without prior convictions. When compared to those sentenced for the first time, persons with prior convictions were less likely to be female ( $p = .017$ ), to be employed ( $p > .001$ ), and to have delusions at the time of the offense ( $p = .008$ ). In addition, they were more likely to have prior psychiatric hospitalizations ( $p = .005$ ) and to be under the influence of alcohol ( $p = .001$ ) and drugs ( $p < .001$ ) when they committed the crime.

### 6.2. Covariates of DH

Table 3 presents the marginal effect of the independent variables on DH and other violent crimes, computed after the MLR estimations. Among the total sample, persons who were convicted of DH were more likely to be older (0.2%,  $p = .026$ ), to be female (11.3%,  $p < .001$ ), to be married (5.7%,  $p = .010$ ), to have had prior psychiatric hospitalizations (5.1%,  $p = .022$ ), and to be under the influence of delusions when they committed the crime (12.9%,  $p < .001$ ). In addition, they were less likely to have prior convictions (9.2%,  $p < .001$ ). Among persons without prior convictions, DH was significantly associated to female gender (18.0%,  $p = .007$ ), prior psychiatric hospitalizations (15.5%,  $p = .001$ ), and delusions at time of the offense (23.0%,  $p < .001$ ). Among the sample of persons with a prior criminal record, DH was only associated to delusions at time of the offense (5.9%,  $p = .037$ ).

**Table 2**  
Descriptive characteristics of the sample by outcome category.

Variable	DH (n = 47)		DV (n = 75)		NDH (n = 114)		NDV (n = 381)	
	M/%	SE/n	M/%	SE/n	M/%	SE/n	M/%	SE/n
age	38.8	1.6	41.5	1.3	33.4	0.9	34.5	0.6
female	17.0	8	4.0	3	5.3	6	3.4	13
Swiss	61.9	29	60.5	45	54.2	62	60.9	232
married	68.0	32	77.3	58	37.7	43	43.1	164
children	53.2	25	66.5	50	33.7	38	35.7	136
employed	80.3	38	82.7	62	65.7	75	62.2	237
psych. hosp.	47.3	22	30.3	23	31.5	36	29.8	114
prior convict.	36.2	17	49.3	37	73.7	84	71.6	273
alcohol	40.4	19	30.3	23	39.7	45	34.0	130
drugs	17.0	8	5.6	4	27.9	32	27.9	106
delusions	30.0	14	9.6	7	10.7	12	4.1	16

Note. DH = domestic homicide, DV = domestic violence, NDH = non-domestic homicide, NDV = non-domestic violence; prior convict. = prior convictions, psych. hosp. = prior psychiatric hospitalization; M = mean, SE = standard error; n = number of persons. Presented values from multiple-imputation estimates for the variables with missing information.

Attending to other violent crimes, covariates of DV included older age, being/having been married, having children (among the total sample, persons with no prior convictions, and persons with prior convictions), being employed (among the total sample and persons with prior convictions), and having delusions at time of the offense (among persons with prior criminal convictions). In addition, DH perpetrators were less likely to be under the influence of drugs at time of the offense (among the total sample and persons with prior convictions) and to have a criminal record (among the total sample).

Among persons who committed non-domestic crimes (i.e., NDH and NDV), persons who were convicted of NDH tended to be younger, single, and to be under the influence of delusions when they committed the crime (among the total sample and persons with no prior convictions). NDV perpetrators were more likely to be single, to have no children (among the total sample and persons without a prior criminal record), to be unemployed, not to be impaired by delusions at time of the offense (among the total sample and persons with prior convictions), to be male (among persons with no prior convictions), to be younger, and under the influence of drugs when they committed the crime (among the total sample) (see Table 3).

Utilizing a sample of persons who committed violent crimes in Switzerland, this study identified covariates of DH and other violent crimes among first-time offenders and persons with a criminal history, thus enlightening the singularities and commonalities of intrafamilial homicide as a crime. Our sample of DH perpetrators is comparable to other studies in Switzerland (see Markwalder & Killias, 2012, pp. 343–354; Scheidegger & Darbellay, 2018) with regards to age (mean 39 years), gender (83.0% male), and nationality (61.9% Swiss) (see also the Domestic Homicide in Switzerland section and Table 2). As expected, persons with a criminal history were distinguished by several risk factors for criminal behavior, such as male gender, unemployment, substance abuse, and mental health problems (Andrews et al., 2006; Farrington, 2015; Gendreau, Little, & Goggin, 1996; Sampson & Laub, 1993).

## 7. Discussion

Attending to our research objective, among the total sample, we observed that persons who committed DH were more likely to be older, female, married, to have a psychiatric hospitalization history, and to be under the influence of delusions at the time of the offense. In addition,



**Table 3**  
Marginal effect of the independent variables on domestic homicide and other crimes.

Variable	Outcome	Total sample (N = 617)		No prior convict. (N = 205)		Prior convict. (N = 409)	
		dy/dx	SE	dy/dx	SE	dy/dx	SE
age	DH	0.2	0.1 <sup>a</sup>	0.3	0.2	0.1	0.1
	DV	0.5	0.1 <sup>c</sup>	0.8	0.2 <sup>c</sup>	0.4	0.1 <sup>b</sup>
	NDH	-0.3	0.2 <sup>a</sup>	-0.7	0.3 <sup>b</sup>	-0.1	0.2
female	NDV	-0.4	0.2 <sup>a</sup>	-0.4	0.3	-0.4	0.2
	DH	11.3	3.1 <sup>c</sup>	18.0	6.7 <sup>b</sup>	a	a
	DV	-0.8	6.6	4.1	10.2	a	a
Swiss	NDH	3.9	7.1	7.2	8.2	a	a
	NDV	-14.4	9.3	-29.3	14.1 <sup>a</sup>	a	a
	DH	0.7	2.3	-0.8	5.2	2.6	2.4
married	DV	0.4	2.8	2.0	5.5	0.4	3.0
	NDH	-4.1	3.4	-7.8	5.2	-3.6	4.2
	NDV	3.0	4.1	6.5	7.1	0.6	5.0
children	DH	5.7	2.2 <sup>a</sup>	8.9	4.8	3.0	2.1
	DV	14.5	3.0 <sup>c</sup>	24.8	5.9 <sup>c</sup>	8.8	3.1 <sup>b</sup>
	NDH	-7.6	3.0 <sup>a</sup>	-9.0	4.4 <sup>a</sup>	-6.4	3.9
employed	NDV	-12.7	3.9 <sup>b</sup>	-24.6	6.0 <sup>c</sup>	-5.3	4.8
	DH	3.8	2.1	7.1	4.7	1.4	1.9
	DV	12.5	2.7 <sup>c</sup>	17.3	5.2 <sup>b</sup>	9.5	3.0 <sup>b</sup>
prior psych. hosp.	NDH	-4.9	3.2	-3.0	4.7	-5.7	4.2
	NDV	-11.3	3.9 <sup>b</sup>	-21.4	6.2 <sup>b</sup>	-5.2	4.9
	DH	5.1	2.9	7.0	7.2	1.9	2.4
prior conv.	DV	9.9	3.5 <sup>b</sup>	3.1	7.0	10.8	4.1 <sup>b</sup>
	NDH	-1.4	3.4	-3.0	5.9	0.9	4.2
	NDV	-13.6	4.5 <sup>b</sup>	-7.2	8.7	-13.7	5.3 <sup>b</sup>
alcohol at offense	DH	5.1	2.2 <sup>a</sup>	15.5	4.8 <sup>b</sup>	2.0	2.0
	DV	-0.6	3.0	-11.9	8.0	4.9	3.0
	NDH	0.1	3.4	6.5	5.2	-3.9	4.3
drugs at offense	NDV	-4.6	4.4	-10.1	8.7	-3.1	5.1
	DH	-9.2	2.3 <sup>c</sup>	-	-	-	-
	DV	-8.5	2.5 <sup>b</sup>	-	-	-	-
delusions at offense	NDH	5.5	3.4	-	-	-	-
	NDV	12.1	4.0 <sup>b</sup>	-	-	-	-
	DH	1.7	2.2	9.6	5.1	0.2	2.0
delusions at offense	DV	-2.6	2.9	-3.8	6.5	-0.3	2.9
	NDH	3.7	3.2	0.5	5.6	4.5	4.1
	NDV	-2.8	4.1	-6.3	8.1	-4.3	4.8
delusions at offense	DH	-2.6	2.8	3.1	8.4	-0.2	2.1
	DV	-18.9	5.5 <sup>b</sup>	-21.9	15.6	-13.7	5.1 <sup>b</sup>
	NDH	4.6	3.6	-2.3	9.5	3.0	4.3
delusions at offense	NDV	16.8	5.5 <sup>b</sup>	21.1	14.0	10.9	5.8
	DH	12.9	2.6 <sup>c</sup>	23.0	5.0 <sup>c</sup>	5.9	2.8 <sup>a</sup>
	DV	5.2	4.6	-19.2	15.3	12.1	4.2 <sup>b</sup>
delusions at offense	NDH	10.1	5.4	13.6	6.1 <sup>a</sup>	5.7	8.8
	NDV	-28.3	7.4 <sup>c</sup>	-17.4	14.5	-23.6	10.2 <sup>a</sup>

Note. prior psych. hosp. = prior psychiatric hospitalization, prior convict. = any prior convictions; DH = domestic homicide, DV = domestic violence, NDH = non-domestic homicide, NDV = non-domestic violence; dy/dx = marginal effect (percentage change), SE = standard error, *p* = statistical significance.

a. group too small to compute a reliable effect size.

<sup>a</sup> *p* < .050.

<sup>b</sup> *p* < 010.

<sup>c</sup> *p* < 001.

they were less likely to have prior convictions. Similarly, DH perpetrators without a prior criminal record were more likely to be female, to have a mental health treatment history, and to have delusions at time of the offense. However, DH perpetrators with a criminal history were only related to delusions at time of the offense. This indicates that DH perpetrators with a criminal history are more similar to generally violent offenders and may therefore represent a specific subtype of DH perpetrators. This group of persons is considerable, representing about two thirds of the DHs in our sample, which confirms that the majority of DH perpetrators tend to be involved in other forms of criminal behavior prior to their actual offense (Piquero et al., 2006).

The results are in line with some prior findings and against others.

This is nevertheless expectable attending to the heterogeneity of results from prior research on DH and the methodology of this study (i.e., covariates of DH and other violent crimes were estimated simultaneously, [ex] partners and other family members were both included in the definition of DH, and the analyses were separated by criminal history). However, the association between DH and older age, female gender, married status, psychiatric disorders, and criminal history has been previously reported in several countries (Belfrage & Rying, 2004; Bourget & Gagné, 2012; Boyle et al., 2008; Caman, Howner, Kristiansson, & Sturup, 2017; Cao et al., 2008; DeJong et al., 2011; Dobash et al., 2004, 2007; Eriksson et al., 2019; Hanlon et al., 2016; Juodis et al., 2014; Kivivuori; Lethi, 2012; Leygraf, 2015; Liem & Koenraadt, 2008; Oram, Flynn, Shaw, Appleby, & Howard, 2013; Thomas et al., 2011) and these characteristics may therefore be relevant indicators for DH risk assessment.

The covariates of DH found in this study were more in line with the specialist perspective than generalist explanations of crime. DH offenders were found to have a more conventional profile than other offenders, resembling the general population more than offenders who commit other types of violence do (Dobash et al., 2004, 2007; Thomas et al., 2011; Weizmann-Henelius et al., 2012). Specifically, although most DH perpetrators had a criminal history, prior convictions were negatively related to DH, showing less criminal propensity among these persons compared to other violent offenders (Cao et al., 2008; Hanlon et al., 2016). Furthermore DH was associated to older age, female gender, and being married, which are protective factors for crime and violence in general (Andrews et al., 2006; Farrington, 2015; Gendreau et al., 1996; Sampson & Laub, 1993; Sampson, Laub, & Wimer, 2006). Besides, a history of mental health problems and the influence of delusions at the time of the offense suggest that DHs are frequently committed by persons under an impaired state of mind, being more likely a response to aggression or emotional distress caused by conflicts within the family (Theobald et al., 2016). Consequently, it may be hard (er) to predict the course of action among these individuals.

Furthermore, when looking at the covariates that turned out significant for the different crimes, we see that the profile of DH perpetrators is more similar to the profile of DV perpetrators than the profile of persons who committed NDH. Older age, being married, delusions at time of the offense, and having a clean criminal record were characteristics shared by both DH and DV perpetrators. Differently, NDH perpetrators tended to be younger and single. Only the presence of delusions at time of the offense was shared by both DH and NDH perpetrators. Psychotic symptoms may thus play a central role in the killing of other person, family member or not (Belfrage & Rying, 2004; Bourget, Gagné, & Whitehurst, 2010; Fazel, Långström, Hjern, Grann, & Lichtenstein, 2009; Thomas et al., 2011). Nevertheless, attending to these results, it can be argued that the context of the offense (i.e., domestic vs. non-domestic) accounts for more differences among violent persons than the severity of their acts (i.e., homicide vs. violence), which supports the specialist perspective of domestic violence. Overall, the findings suggests that DH and the homicide of non-family members are different phenomena, not an expression of general violence propensity.

### 7.1. Limitations and future directions

This study has several limitations. Theoretically important gendered risk factors were not available for analysis, including patriarchal attitudes and beliefs, personality traits, and other forms of maltreatment such as sexual violence, emotional abuse, and neglect. If such correlates of DH were included, the results could be different (Oram et al., 2013). Although criminal justice files are a rich source of data, they frequently lack important information that could shed light on the correlates of DH, such as prior history of DV (DeJong et al., 2011). Additionally, the results could vary if DH was decomposed into more specific offenses, like uxoricide or filicide. The incidence of some violent crimes in our sample was too low to run separated analyses, but future research focusing on

more specific outcomes would help to advance knowledge in this area (Dobash et al., 2004). In addition, due to the small size of the sample in some groups (e.g., females), no multivariable model was performed. Consequently, replications of this study in larger samples and with a more varied set of covariates is necessary. Besides, this study is retrospective and therefore no causal association between covariates and outcomes can be made. Furthermore, although our sample is comparable to other studies in Switzerland, the available data was collected several years ago and therefore trends in DH may have changed. It is also important to note that Switzerland is a peculiar country for the study of DH attending to its low homicide rate but high proportion of DH. Therefore, the results may not be transferable to all contexts. Studies from a broader range of countries are needed as most DH research comes from North America (Dobash et al., 2004).

## 7.2. Implications and conclusion

Despite limitations, this study has implications. Theoretically, the results suggest that DH is better explained by specialist theories. Besides, this implies that specialized assessment and intervention methods for domestic perpetrators are necessary (Dixon & Graham-Kevan, 2011; Dutton, 2006; Kelly & Johnson, 2008). Persons with prior convictions seem to be more similar to other violent persons and, in such cases, general violence risk assessment tools and intervention programs may work better. Furthermore, the early recognition and treatment of psychotic disorders could prevent DHs (Belfrage & Rying, 2004; Bourget et al., 2010). As many offenders with delusional symptoms have a lifetime diagnosis of mental illness (Oram et al., 2013), when symptoms are accompanied by real or perceived threats to family members, clinicians could add this information into their report to signalize persons at risk (Liem & Koenraadt, 2008). Methodologically, utilizing NDV as the reference group for analyses – instead of DV or NDH – and comparing the covariates of DH with the covariates of both DV and NDH is probably more informative and may reduce the heterogeneity of results found in prior domestic homicide studies. Furthermore, the MLR results were presented in terms of marginal effects and therefore do not represent the effects in comparisons to a reference group, but rather in a probabilistic scale, which helps to interpret the influence of covariates on different outcomes (Wulff, 2015).

Concluding, DH remains an open discussion with some authors explaining it more through gendered values and behaviors and others more through a general violence propensity. Based on the current sample, data, and methods, DH appears to be better explained by specialist theories than generalist explanations of crime, although DH perpetrators with a criminal history seem to be more similar to generally violent persons. Consequently, besides educational programs for the general population, specific violence risk assessment tools and interventions for domestic offenders may be necessary to prevent lethal outcomes. However, replications of this study in other countries, with larger samples, and a broader set of covariates are necessary to generalize the current findings.

## Declaration of competing interest

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