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About the Authors

Rebecca Stone is an Assistant Professor Sociology at Suffolk University in Boston, Massachusetts. Dr. Stone's research concerns the overlap between criminal justice and public health, with a focus on public health approaches to reducing justice and health disparities. Her recent research focuses on identity change and desistance from crime, particularly for women with histories of both criminal offending and substance abuse. Her scholarship is shaped by a commitment to social justice, especially regarding race, class, gender, and health, and has appeared in the *British Journal of Criminology*, *Health and Justice*, and *Feminist Criminology*.

Jason Rydberg is an assistant professor of criminology and justice studies at the University of Massachusetts Lowell, where he is also an associate with the Center for Program Evaluation. His research interests concern the evaluation of criminal justice program and policies, particularly in the areas of prisoner reentry, community supervision, and sex offender policy. His research has recently appeared in the *Journal of Quantitative Criminology*, the *Journal of Experimental Criminology*, and *Sexual Abuse*.

Executive Summary

This report details patterns of intimate partner violence (IPV) victimization and offending by using the 2014 and 2015 Michigan Incident Crime Reports (MICR). Defining intimate partner violence as physical, sexual, or psychological harm committed by current or former intimate partners or spouses, this report examines characteristics of victims, offenders, their relationships, and offense characteristics. Key results can be summarized as follows:

- Between 2014 and 2015 there were 85,636 IPV offenses reported by Michigan law enforcement agencies, affecting 87,904 victims.

- The frequency of IPV offenses was relatively stable between 2014 and 2015, with the exception of intimidation offenses, which increased by 9% from 2014 to 2015.

- Across all IPV incidents, current dating relationships between victims and offenders were the most prevalent (45%), followed by current spouses (22%), and former dating relationships (17%). Former relationships were more prevalent among intimidation offenses.

- The most common structure for an IPV incident was a lone female victim and a lone male offender.

- Victims and offenders tended to be between 25-34 years old, with the exception of sexual IPV victims, who were most commonly under 18 years old.

- African American females experienced the highest IPV victimization rates, at a rate of just under 200 per 10,000. The next highest victimization rate was for white females, at just under 50 per 10,000.

- About 40% of IPV offenses resulted in an arrest, with physical IPV offenses having the highest likelihood of arrest, and intimidation offenses the lowest.

- Offenses between spouses were the most likely to result in an arrest, with offenses among dating relationships and former relationships significantly less likely to result in an arrest.

- IPV victimizations were more common in jurisdictions with higher levels of socioeconomic deprivation and income inequality, sexual IPV victimizations were more common in rural areas.

Purpose of this Research

Intimate partner violence (IPV), broadly defined by public health practitioners as physical, sexual, or psychological harm by current or former romantic partners or spouses (CDC, 2017), is both a public health and criminal justice concern. The National Intimate Partner and Sexual Violence Survey (NISVS) finds that, nationally, 37.3% of women and 30.9% of men experience sexual violence, physical violence, or stalking by an intimate partner during their lifetimes. In the 12 months prior to participating in the NISVS, 6.6% of women and 6.4% of men reported any sexual violence, physical violence, and/or stalking by an intimate partner (Smith et al., 2017).

The consequences of intimate partner violence can be serious and long-lasting. Victimization has been repeatedly linked to physical health problems including mild to severe injuries, asthma, cardiovascular problems, frequent headaches, chronic pain conditions, gastrointestinal symptoms (irritable bowel syndrome, ulcers, abdominal pain) and difficulty sleeping (Coker, Smith, Bethea, King, & McKeown, 2000; Dillon, Hussain, Loxton & Rahman, 2013; Plichta, 2004; Smith et al., 2017). It is also associated with a range of psychological conditions including depression, anxiety, post-traumatic stress disorder, and suicidality (Bryant-Davis, Chung, Tillman, & Belcourt, 2009; Campbell & Lewandowski, 1997; Dillon et al., 2013).

The risk and impact of intimate partner violence is not evenly distributed. Ethnic minority groups are disproportionately impacted, with higher lifetime prevalence rates of IPV among non-Hispanic Black and Native American/Alaska Native populations (Cho, 2012; Halpern, Springs, Martin, & Kupper, 2009; Smith et al., 2017; Wahab & Olson, 2004). Higher rates of intimate partner violence have also been documented. Community-based studies suggest that Latina and Asian immigrant women also experience high rates of intimate partner violence (Cavanaugh et al., 2014; Lee & Hadeed, 2009; Raj & Silverman, 2003; Song, 1996) and are particularly vulnerable due to poverty, social isolation, and immigration status (Runner, Yoshihama & Novick, 2009).

Studies of intimate partner violence have largely focused at the national or state level (e.g. the NISVS and other national- and state-level surveys) or at the individual level (e.g. Alhabib, Nur, & Jones, 2010; DePrince, Chu, & Pineda, 2011; Jones, Hughes, & Unterstaller, 2001; Kaysen, Resick, & Wise, 2003). The Michigan Incident Crime Reporting (MICR) system provides the opportunity to examine the nature, extent, and distribution of intimate partner violence offenses in Michigan at multiple levels: the state, county, interpersonal, and individual. The analysis of such detailed criminal justice data can inform tailored interventions that will better meet the needs of Michigan residents.

Methods for Studying Intimate Partner Violence in Michigan

Patterns of IPV in Michigan are examined using data from the Michigan Incident Crime Reporting System (MICR), an incident-level crime database maintained by the Michigan State Police. Unlike summary reporting systems, such as the Uniform Crime Reports (UCR), which only report the aggregate number of offenses for a given reporting agency in a given timeframe, MICR contains numerous “segments” which detail various aspects of criminal incidents. Indeed, a summary reporting system would be unable to assess the nature and prevalence of IPV because it would not be possible to identify which violent crimes were committed between current or former intimate partners. However, by distinguishing between victim, offender, and incident

characteristics, MICR enables the identification of IPV incidents from other forms of violence. As an additional strength, compared to states with relatively little National Incident-Based Reporting System (NIBRS) participation, Michigan has a high participation rate. Between 2014 and 2015, with 511 agencies reporting IPV incidents in 2014, and 521 in 2015, representing a participation rate in excess of 99%.

The MICR data for 2014 and 2015 were provided to the Michigan Justice Statistics Center in the form of raw, unlinked files pertaining to different segments of the criminal incident (e.g., victim, offender, offense, etc.). These files were linked according to common IDs (see Rydberg [2016] for a description of the file linking process), which produced a dataset in which each row represented a victim by offender by offense triad. In other words, each row of the data represented an offense committed against a victim by an offender. As opposed to the hierarchy rule imposed by the Uniform Crime Reports (UCR), where only the most serious offense in a given criminal incident is counted, it is possible under this data structure to allow for multiple offenses to be committed against one or more victims by one or more offenders. To this extent, the analyses in this report utilize unique IDs applied to each offense, offender, victim, and victim/offender pairing to avoid overcounting data.

This report compiled MICR segments to link victim, offender, offense, and incident characteristics. The following offenses were extracted from the MICR data (Table 1):

Table 1. IPV Offenses included and MICR Offense Codes

Offense Type	MICR Code
Physical IPV	
Simple Assault	13001
Aggravated Assault	13002
Robbery	12000
Kidnapping/Abduction	10001
Homicide	9001 / 9002 / 9003
Sexual IPV	
Criminal Sexual Conduct 1	11001 / 11003 / 11005
Criminal Sexual Conduct 2	11007
Criminal Sexual Conduct 3	11002 / 11004 / 11006
Criminal Sexual Conduct 4	11008
Other Sex Offense	36004
Intimidation	13003

These offenses were chosen based on their consistency with previous research analyzing patterns of IPV using NIBRS data (e.g., Durfee & Fetzer, 2016; Thompson, Saltzman, & Bibel, 1999). Importantly, these offenses distinguish the different manifestations of IPV by differentiating physical violence, sexual violence, and intimidation/stalking (CDC, 2017).

Based on this subset of offenses, Table 2 breaks down the totals of unique offenses, victims, offenders, and victim-offender pairs across 2014 and 2015. These totals tend to be very similar since the majority of IPV incidents involve a single victim and a single offender. Physical IPV offenses made up the bulk of the data (85.7%), primarily due to that category including simple assaults. Between 2014 and 2015 there was a slight increase in IPV (+1.5%), which is consistent with national trends in IPV which were stable between the two years (Truman &

Morgan, 2016), and other forms of sexual victimization in Michigan (Rydberg, 2017). There was a relatively larger increase in intimidation offenses from 2014 to 2015, increasing 9%.

Table 2. Intimate Partner Violence (IPV) Unique Victims, Offenders, and Offenses across 2014 and 2015

Offense Type	2014	2015	Difference
Physical IPV			
Unique Offenses	36,602	36,771	+0.5%
Unique Victims	37,773	37,879	+0.3%
Unique Offenders	37,924	38,013	+0.2%
Unique Victim-Offender Pairs	38,669	38,776	+0.3%
Sexual IPV			
Unique Offenses	968	996	+2.9%
Unique Victims	978	1,000	+2.2%
Unique Offenders	989	1,005	+1.6%
Unique Victim-Offender Pairs	996	1,011	+1.5%
Intimidation IPV			
Unique Offenses	4,927	5,372	+9.0%
Unique Victims	4,936	5,378	+9.0%
Unique Offenders	4,943	5,389	+9.0%
Unique Victim-Offender Pairs	4,946	5,393	+9.0%
Overall IPV			
Unique Offenses	42,497	43,139	+1.5%
Unique Victims	43,671	44,233	+1.3%
Unique Offenders	43,833	44,376	+1.3%
Unique Victim-Offender Pairs	44,595	45,156	+1.3%

The following sections will detail several descriptive and inferential analyses of IPV incidents in Michigan. The analyses combine data from 2014 and 2015, as the patterning of the IPV incidents reported here are consistent across the two years (i.e., the breakdown of victim-offender relationship categories is similar between 2014 and 2015). This is meant to simplify the presentation of the results. The first set of analyses will detail the characteristics of IPV incidents, particularly how the victims and offenders relate to one another.

A Note on Defining Intimate Partner Violence

This report focuses on the concept of "Intimate Partner Violence," referring to violence in which the victim is a current or former intimate partner of the offender. The MICR data contain a flag for "Domestic Violence," but how MICR defines "domestic violence" appears to be more stringent than the definition that we apply here. To this extent, these results may diverge from any MSP analyses reporting on "domestic violence."

Characteristics of IPV Incidents

The first set of analyses (Table 3) break down the victim's relationship to the offender across the different IPV offense types (physical, sexual, and intimidation). Across all IPV incidents, current dating relationships were the most prevalent (45%), followed by current spouses (22%), and former dating relationships (17%). Some variations across the offense types are notable. For instance, current spouses are more prevalent within physical IPV incidents than in the other forms of IPV. Current dating relationships are more prevalent among sexual IPV incidents, and former dating relationships among intimidation IPV incidents.

When considering the prevalence of different IPV offense types within each victim-offender relationship, physical IPV is by far the most prevalent (mostly due to simple assaults), often making up more than 90% of offenses. The notable exceptions are former spouses and dating relationships, in which intimidation offenses make up a relatively large proportion of offenses (30-40%).

Table 3. Victim to Offender Relationship across Offense Types (Unique Victims-Offender Pairs)

Victim to Offender Relationship (VOR)	Physical IPV	Sexual IPV	Intimidation IPV	Overall IPV
	N (%)	N (%)	N (%)	N (%)
Spouse	17,854	177	1,243	19,274
% within Offense Type	(23.1%)	(9.0%)	(12.0%)	(21.5%)
% within VOR	(92.6%)	(0.9%)	(6.4%)	(100.0%)
Common-Law Spouse	1,119	11	60	1,190
% within Offense Type	(1.4%)	(0.5%)	(0.6%)	(1.3%)
% within VOR	(94.0%)	(0.9%)	(5.0%)	(100.0%)
Non-Married Child in Common	6,418	33	767	7,218
% within Offense Type	(8.3%)	(1.7%)	(7.4%)	(8.0%)
% within VOR	(88.9%)	(0.5%)	(10.6%)	(100.0%)
Dating Relationship	36,652	1,164	2,210	40,026
% within Offense Type	(47.3%)	(58.9%)	(21.4%)	(44.6%)
% within VOR	(91.6%)	(2.9%)	(5.5%)	(100.0%)
Same-Sex Relationship	1,622	61	99	1,782
% within Offense Type	(2.1%)	(3.1%)	(1.0%)	(2.0%)
% within VOR	(91.0%)	(3.4%)	(5.6%)	(100.0%)
Former Spouse	1,532	44	1,127	2,703
% within Offense Type	(2.0%)	(2.2%)	(10.9%)	(3.0%)
% within VOR	(56.7%)	(1.6%)	(41.7%)	(100.0%)
Former Dating Relationship	9,807	480	4,820	15,107
% within Offense Type	(12.7%)	(24.3%)	(46.6%)	(16.8%)
% within VOR	(64.9%)	(3.2%)	(31.9%)	(100.0%)
Victim was Offender	2,437	5	9	2,451
% within Offense Type	(3.1%)	(0.3%)	(0.1%)	(2.7%)
% within VOR	(99.4%)	(0.2%)	(3.7%)	(100.0%)

Tables 4 and 5 provide details on the structure of IPV incidents, describing the numbers of victims and offenders within a given incident, and victim-offender gender relationships. Table 4 highlights that the majority of IPV offenses are committed by a single offender against a single victim, making up 92% of all IPV victim offender-pairs, and 99% of intimidation offenses.

Table 4. Structure of IPV Incidents (Unique Victims-Offender Pairs)

Victims and Offenders	Physical IPV	Sexual IPV	Intimidation IPV	Overall IPV
	N (%)	N (%)	N (%)	N (%)
Single Victim / Single Offender	70,210 (90.7%)	1,848 (93.6%)	10,248 (99.2%)	82,306 (91.7%)
Single Victim / Multi. Offenders	752 (1.0%)	46 (2.3%)	42 (0.4%)	840 (0.9%)
Multi. Victim / Single Offender	172 (0.2%)	18 (0.9%)	13 (0.1%)	203 (0.2%)
Multi. Victims / Multi. Offenders	6,307 (0.8%)	63 (3.2%)	32 (0.3%)	6,402 (0.7%)

Table 5 displays the gender structure of the IPV incidents in 2014 and 2015. Overall, three-quarters of IPV incidents involved a female victim and a male offender. However, across the individual offense types there was some variation. For sexual IPV offenses, female victims and male offenders made up 93% of offenses, and there was a relatively larger proportion of male victims and female offenders among physical IPV offenses.

Table 5. Victim and Offender Gender Combinations (Unique Victims-Offender Pairs)

Victims and Offenders	Physical IPV	Sexual IPV	Intimidation IPV	Overall IPV
	N (%)	N (%)	N (%)	N (%)
Female Victim- Male Offender	57,863 (74.7%)	1,828 (92.6%)	8,483 (82.1%)	68,174 (76.0%)
Female Victim- Female Offender	2,240 (2.9%)	24 (1.2%)	62 (0.6%)	2,326 (2.6%)
Male Victim- Male Offender	1,822 (2.4%)	42 (2.1%)	46 (0.4%)	1,910 (2.1%)
Male Victim- Female Offender	15,497 (20.0%)	81 (4.1%)	1,740 (16.8%)	17,318 (19.3%)

Table 6 describes weapon use across IPV offenses. For the most part, physical and sexual IPV offenses did not involve the use of a weapon. When they did, melee weapons (i.e., knives, clubs), were the most prevalent, making up 6% of physical IPV offenses. However, it is important to note that intimidation offenses do not include the use of a weapon by legal definition (otherwise the offense would be classified as an assault).

Table 6 also includes information on whether the victim sustained any injuries. Overall, a preponderance of IPV offenses (46%) involved a minor injury to the victim, although this is largely driven by the frequency of physical assaults in the data. About three-quarters (72%) of sexual IPV offenses did not involve an injury to the victim. There were 113 IPV homicides in the 2014-2015 data. As with weapon use, intimidation IPV also shares a similar definition issue with injuries.

Table 6. Weapon Use and Injuries across IPV Offense Types (Unique Offenses)

	Physical IPV	**Sexual IPV**	**Intimidation IPV***	**Overall IPV**
	N (%)	N (%)	N (%)	N (%)
Weapon Use				
Unarmed	62,541 (85.2%)	1,709 (87.0%)	0 (0.0%)	64,250 (75.0%)
Melee Weapon	4,496 (6.1%)	23 (1.2%)	0 (0.0%)	4,519 (5.3%)
Firearm	1,814 (2.5%)	19 (1.0%)	0 (0.0%)	1,833 (2.1%)
Other Weapon	4,014 (5.5%)	25 (1.3%)	0 (0.0%)	4,039 (4.7%)
Unknown	508 (0.7%)	188 (9.6%)	10,229 (100.0%)	10,995 (12.9%)
Victim Injury				
No Injury	32,672 (44.5%)	1,417 (72.1%)	0 (0.0%)	34,096 (39.8%)
Minor Injury	39,204 (53.4%)	338 (17.2%)	0 (0.0%)	39,544 (46.2%)
Severe Injury	1,384 (1.9%)	81 (4.1%)	0 (0.0%)	1,465 (1.7%)
Fatal Injury	113 (0.2%)	0 (0.0%)	0 (0.0%)	113 (0.1%)
Unknown	0 (0.0%)	128 (6.5%)	10,229 (100.0%)	10,418 (12.2%)

* Note: By definition, intimidation offenses in Michigan do not include the use of weapon or the occurrence of victim injury.

Characteristics of IPV Victims and Offenders

The next several Tables describe demographic characteristics of IPV victims and offenders, detailing the distributions of age and race. Victims of IPV were most frequently aged 25-34 (35% of all victims), and 81% of victims were between 18 and 44. Victims of sexual IPV were an exception, where victims under 18 were the most prevalent (52% of sexual IPV victims). This pattern is consistent with analyses of overall sexual victimization in Michigan (Rydberg, 2017). Victims of IPV were mostly white (57% of overall victims), and white victims made up a larger proportion of sexual IPV victims (78%). African Americans made up approximately 41% of victims, but were relatively less prevalent among sexual IPV victims.

Table 7. Victim Demographics by IPV Offense Types (Unique Victims)

	Physical IPV	**Sexual IPV**	**Intimidation IPV**	**Overall IPV**
	N (%)	N (%)	N (%)	N (%)
Victim Age				
Under 18	1,348 (1.8%)	1,006 (51.7%)	292 (2.8%)	2,646 (3.0%)
18 – 24	20,403 (27.0%)	301 (15.5%)	2,320 (22.5%)	23,024 (26.2%)
25 – 34	26,602 (35.2%)	317 (16.3%)	3,617 (35.1%)	30,536 (34.7%)
35 – 44	15,277 (20.2%)	183 (9.4%)	2,368 (23.0%)	17,828 (20.3%)
45 – 54	8,647 (11.4%)	88 (4.5%)	1,263 (12.3%)	9,998 (11.4%)
55 +	3,371 (4.5%)	51 (2.6%)	450 (4.4%)	3,872 (4.4%)
Victim Race				
White	42,209 (55.8%)	1,517 (78.0%)	5,966 (57.9%)	49,692 (56.5%)
African American	31,338 (41.4%)	344 (17.7%)	4,003 (38.8%)	35,685 (40.6%)
Asian	257 (0.3%)	13 (0.7%)	26 (0.3%)	296 (0.3%)
Amer. Indian	187 (0.2%)	6 (0.3%)	13 (0.1%)	206 (0.2%)
Unknown	1,657 (2.2%)	66 (3.4%)	302 (2.9%)	2,025 (2.3%)

Table 8 displays the same characteristics for IPV offenders. Offenders shared similar characteristics with IPV victims, as those aged 25-34 were the most prevalent (35%). Relative to IPV victims, offenders of sexual IPV were slightly older than victims, with those age 18-24 were the most prevalent (34%). Offenders also tended to be white (51%), and white offenders were overrepresented among sexual IPV offenders.

Table 8. Offender Demographics by IPV Offense Types (Unique Offenders)

	Physical IPV	**Sexual IPV**	**Intimidation IPV**	**Overall IPV**
	N (%)	N (%)	N (%)	N (%)
Offender Age				
Under 18	893 (1.2%)	518 (26.4%)	189 (1.8%)	1,600 (1.8%)
18 - 24	17,578 (23.2%)	670 (34.2%)	1,941 (18.8%)	20,198 (22.9%)
25 – 34	27,100 (35.7%)	339 (17.3%)	3,440 (33.3%)	30,879 (35.0%)
35 – 44	16,683 (22.0%)	224 (11.4%)	2,635 (25.5%)	19,542 (22.2%)
45 – 54	9,690 (12.8%)	151 (7.7%)	1,559 (15.1%)	11,400 (12.9%)
55 +	3,997 (5.2%)	57 (2.9%)	556 (5.4%)	4,590 (5.2%)
Offender Race				
White	38,565 (50.8%)	1,386 (70.8%)	5,371 (52.0%)	45,322 (51.4%)
African American	35,174 (46.3%)	449 (22.9%)	4,429 (42.9%)	40,052 (45.4%)
Asian	280 (0.4%)	6 (0.3%)	24 (0.2%)	310 (0.4%)
Amer. Indian	238 (0.3%)	7 (0.4%)	21 (0.2%)	266 (0.3%)
Unknown	1,673 (2.2%)	111 (5.7%)	475 (4.6%)	2,259 (2.6%)

Table 9 expands on the victim characteristics in Table 7 (above) by estimating victimization rates for each type of IPV offense across victim race and gender. These rates are calculated by using data from the 2010 US census for Michigan. Taking population into account, the results in Table 9 suggest that African American females were at the highest risk of IPV victimization, with an overall rate of 197 victims per 10,000 residents. African American females were at the highest risk of victimization for all IPV offense types as well, although the sexual IPV victimization rates were relatively similar for both white and African American women. Victimization rates for men were lower than those for females, with female risk often sitting 3-4 times larger than for males. Victimization rates for sexual IPV were considerably larger for women, with a rate 16 times larger for African American women than African American men, and 15 times larger for white women than white men.

Table 9. IPV Victimization Rates per 10,000 Residents across Race and Gender (Unique Victims) (2014-2015)

	White	African American	Asian	American Indian
Physical IPV				
Female Victims	39.9	173.1	7.2	25.3
Male Victims	13.1	44.3	1.9	9.3
Female / Male Ratio	*3.0*	*3.9*	*3.7*	*2.7*
Sexual IPV				
Female Victims	1.8	2.3	0.5	0.9
Male Victims	0.1	0.1	0.0	0.2
Female / Male Ratio	*14.7*	*16.4*	--	*5.0*
Intimidation IPV				
Female Victims	6.4	21.3	0.8	1.8
Male Victims	1.1	6.6	0.1	0.6
Female / Male Ratio	*5.8*	*3.2*	*7.2*	*3.3*
Overall IPV				
Female Victims	48.1	196.7	8.5	28.1
Male Victims	14.3	51.1	2.1	10.0
Female / Male Ratio	*3.4*	*3.8*	*4.1*	*2.8*

Place and Timing of IPV Incidents

Victimization rates varied regionally, and this variation was not consistent across IPV offense types. Figures 1, 2, and 3 display victimization rates by Michigan counties. For physical IPV offenses, Calhoun County had the highest victimization rate, at 76 per 10,000. Kalamazoo (64), Wayne (61), and Saginaw Counties (54) had the next three highest rates of physical IPV.

Figure 1. Physical IPV Rates per 10,000 Residents across Michigan Counties (2014-2015)

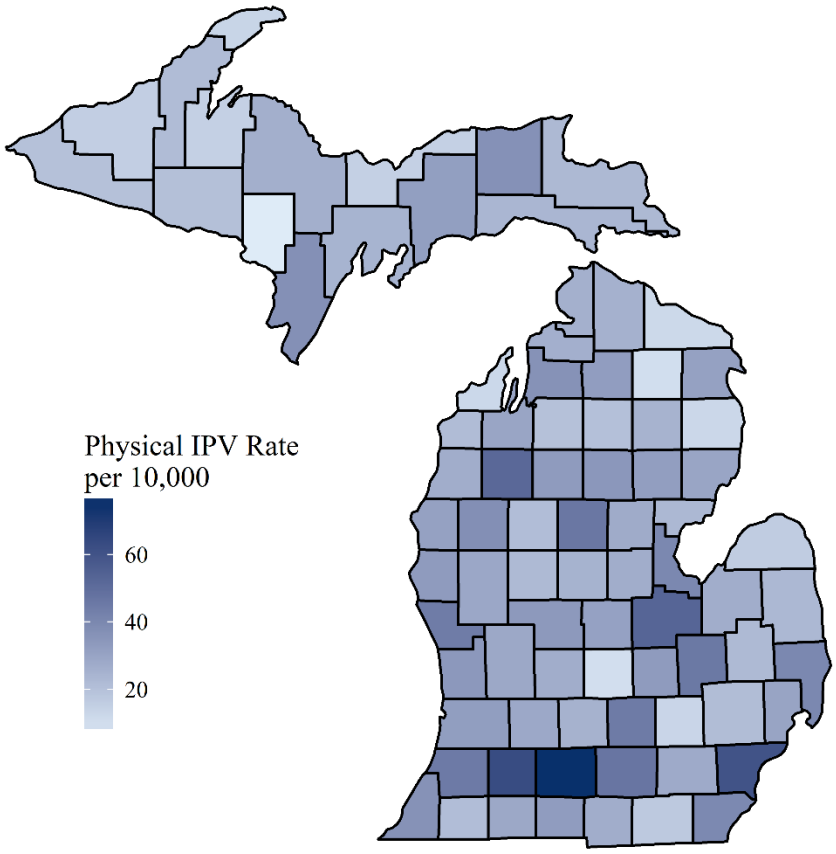


Figure 2 displays a similar breakdown for sexual IPV victimization rates. Several counties reported no sexual IPV victims between 2014 and 2015, and these counties are highlighted in gray. The counties with the highest sexual IPV rates were Arenac (3.7), Iron (3.0), Crawford (2.8), and Mason Counties (2.8). Comparing Figures 1 and 2 suggests that counties with high physical IPV rates did not necessarily have high sexual IPV victimization rates as well.

Figure 2. Sexual IPV Rates per 10,000 Residents across Michigan Counties (2014-2015)

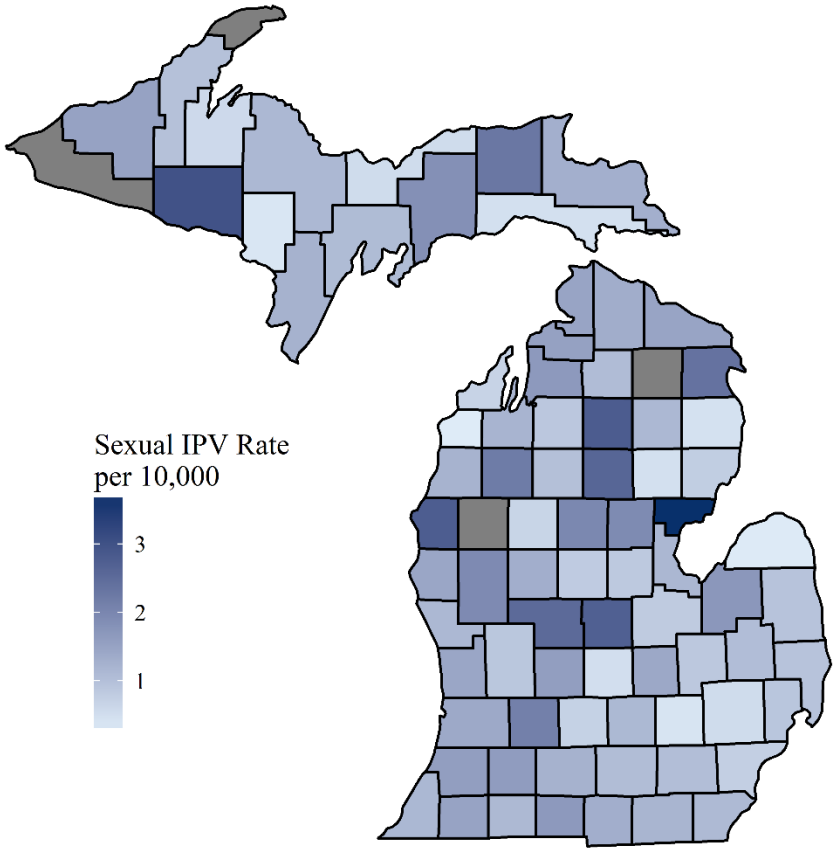


Figure 3 displays the distribution of intimidation IPV victimization rates. Wayne (9.1), Saginaw (8.7), St. Clair (7.3), and Bay Counties (7) had the highest intimidation IPV victimization rates.

Figure 3. Intimidation IPV Rates per 10,000 Residents across Michigan Counties (2014-2015)

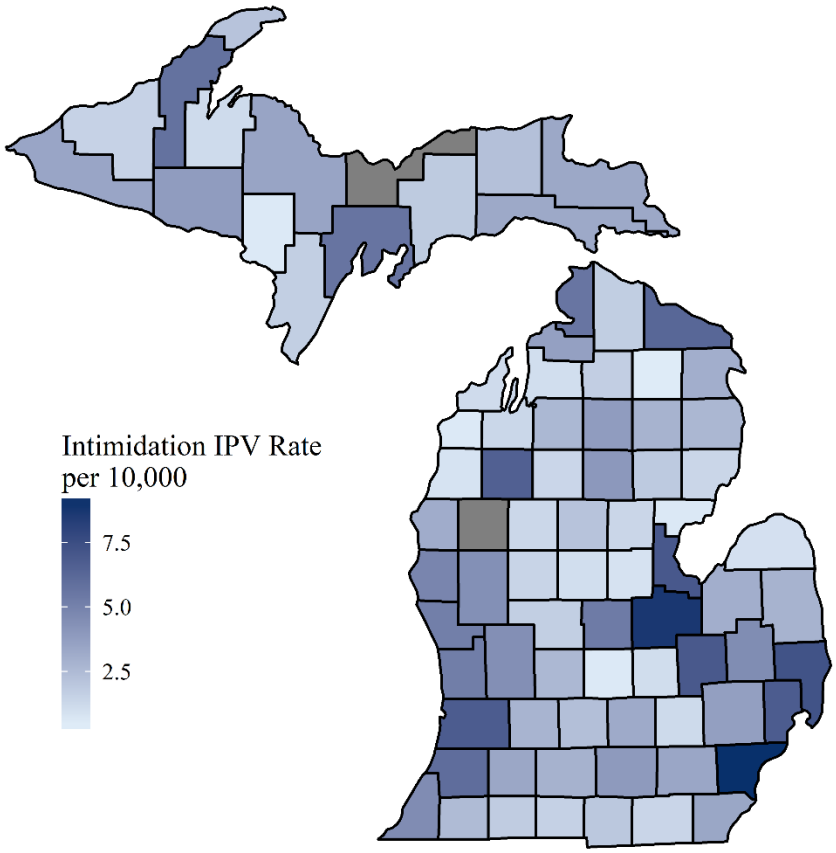
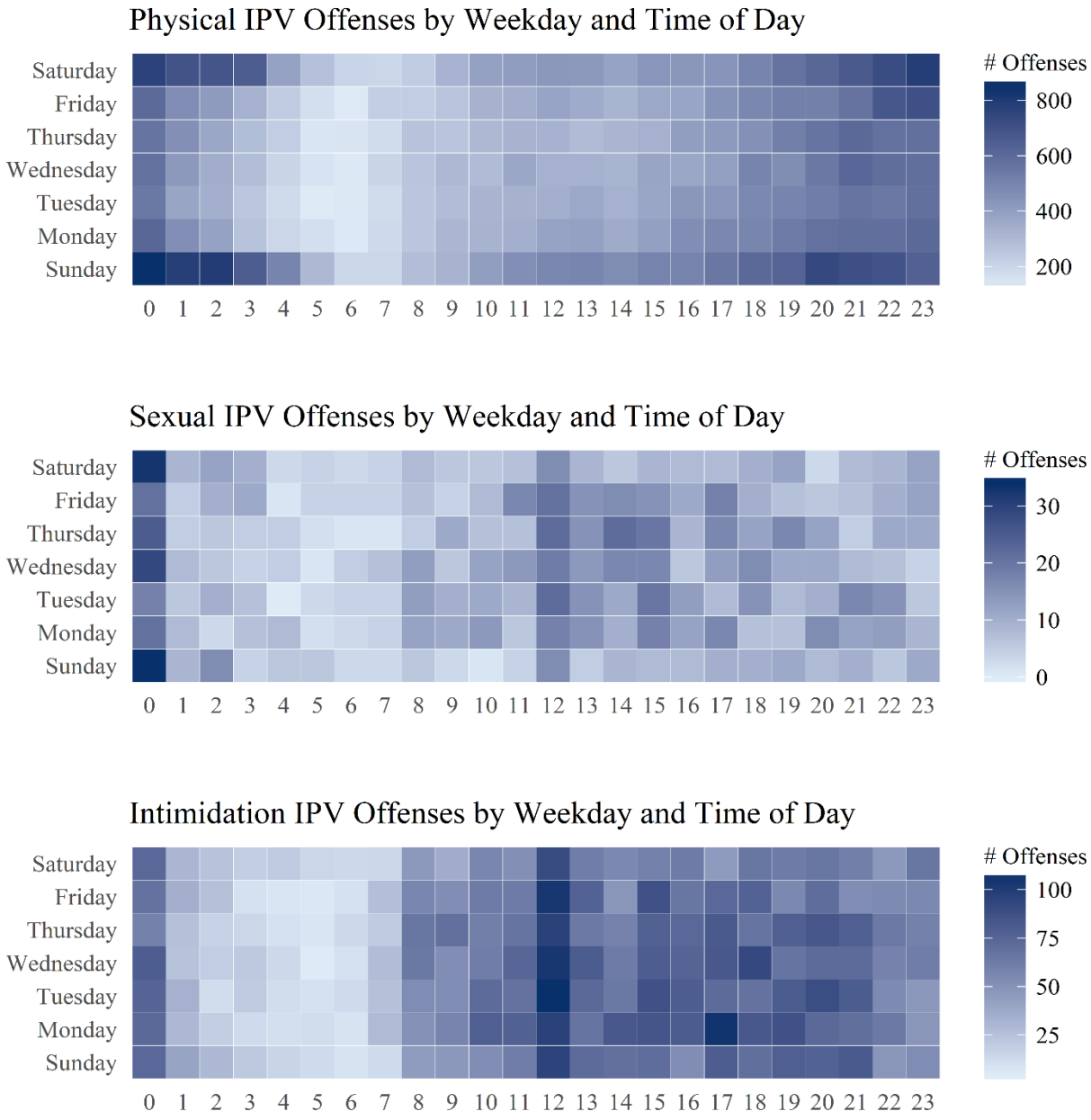


Figure 4 displays a heatmap for the timing of IPV offenses. Each block of the map represents a specific hour on a specific day. The lighter colored blocks suggest fewer offenses being reported at the time, and darker blocks suggesting that more offenses are reported at those times. Several patterns are noteworthy. For physical IPV offenses, more offenses are reported on the weekends, and particularly in the late evening/early morning. Patterns for sexual and intimidation offenses are relatively less defined. Intimidation IPV offenses appear to occur with similar frequency from 8am to the early morning.

Figure 4. Temporal Analysis of Intimate Partner Violence Offenses (2014-2015)



Notes: Some caution is warranted - 4,529 offenses (5.3%) missing information on incident hour. It is also possible that some offenses with unknown incident hours were recorded as occurring at midnight (hour = 0).

Arrests Stemming from IPV Incidents

The next several Tables examine the likelihood of arrests stemming from IPV incidents. Table 10 breaks down arrests across IPV offense types. Overall, between 2014 and 2015 there were 34,349 arrests reported for IPV offenses in the MICR data, accounting for 40% of all IPV offenses. The arrest rates varied across the different IPV offense types and their sub-offenses. Physical IPV offenses had the highest arrest rates, with 45% of offenses leading to an arrest. Among the physical IPV sub-offenses, kidnapping/abduction (59%) and homicide (54%) had the highest arrest rates. Less than one-fifth (18%) of sexual IPV offenses led to an arrest, and intimidation offenses had the lowest arrest rate, with 7% reported. These relative distributions are similar to those reported in research using NIBRS data from multiple states (Durfee & Fetzer, 2016).

Table 10. Arrest Rates for Intimate Partner Violence by Offense Type (Unique Offenses)

Offense Type	Total Offenses	Number of Arrests	% Offenses Ending in Arrest
Physical IPV	73,373	33,284	45.4%
Simple Assault	60,260	27,076	44.9%
Aggravated Assault	12,389	5,928	47.8%
Robbery	341	61	17.9%
Kidnapping/Abduction	270	158	59.3%
Homicide	113	61	54.0%
Sexual IPV	1,964	343	17.5%
Criminal Sexual Conduct 1	839	146	17.4%
Criminal Sexual Conduct 2	67	22	32.8%
Criminal Sexual Conduct 3	762	129	16.9%
Criminal Sexual Conduct 4	153	23	15.0%
Other Sex Offense	143	23	16.1%
Intimidation	10,299	722	7.0%
Total	85,636	34,349	40.1%

Table 11 displays arrest rates across IPV offense types and incident structure, comparing offenses with different gender combinations for victims and offenders. Overall, same-sex offenses involving male victims and offenders had the highest arrest rate, with 48% of offenses resulting in an arrest, followed by female victims and female offenses (47%). There was a slightly higher arrest rate for offenses involving male victims and female offenders (43%), than for offenses involving female victims and male offenders (40%).

Table 11. Arrest Rates for Intimate Partner Violence by Victim and Offender Gender (Unique Victim-Offender Pairs)

Offense Type	Total Pairs	Number of Arrests	% Pairs Ending in Arrest
Physical IPV	75,004	34,181	45.6%
Female Victim-Male Offender	57,863	25,982	44.9%
Female Victim-Female Offender	1,024	504	49.2%
Male Victim-Male Offender	602	317	52.7%
Male Victim-Female Offender	15,497	7,377	47.6%
Sexual IPV	1,970	347	17.6%
Female Victim-Male Offender	1,828	328	17.9%
Female Victim-Female Offender	21	4	19.0%
Male Victim-Male Offender	40	7	17.5%
Male Victim-Female Offender	81	8	9.9%
Intimidation	10,326	744	7.2%
Female Victim-Male Offender	8,483	688	8.1%
Female Victim-Female Offender	58	6	10.3%
Male Victim-Male Offender	41	4	9.8%
Male Victim-Female Offender	1,740	46	2.6%
Total	87,300	35,272	40.4%
Female Victim-Male Offender	68,174	26,998	39.6%
Female Victim-Female Offender	1,103	514	46.6%
Male Victim-Male Offender	683	328	48.0%
Male Victim-Female Offender	17,318	7,431	42.9%

Table 12 (below) summarizes factors that were estimated to be associated with the likelihood of an arrest taking place. This table summarizes results from a series of logit regression models which estimate how certain factors (e.g., incident structure, victim race) predict the likelihood of an arrest taking place, while controlling for the influence of other victim, offender, and incident characteristics (see the Technical Appendix for the full model results). For any categorical variable, the likelihood of arrest is reported as compared to some reference category.

Several patterns are noteworthy. Across all IPV offense types, offenses in which the victim was a spouse to the offender were the most likely to result in an arrest, with several other victim offender relationships suggesting that they were less likely to result in an arrest. In terms of victim and offender race, physical IPV incidents with African American victims were less likely than those with white victims to result in an arrest (31% less likely), and those with African American offenders were more likely to result in an arrest (44% more likely). The opposite pattern was observed for sexual IPV incidents.

Table 12. Summarizing Factors Associated with Arrest Odds for IPV (Unique Victims)

	Physical IPV	Sexual IPV	Intimidation IPV
Incident Structure	% Change in Odds	% Change in Odds	% Change in Odds
Single Victim / Single Offender	(Reference)	(Reference)	(Reference)
Single Victim / Multi. Offenders			+1,057.5%
Multi. Victim / Single Offender			+384.2%
Multi. Victims / Multi. Offenders	-67.4%	-32.4%	
Victim-Offender Relationship			
Spouse	(Reference)	(Reference)	(Reference)
Common Law Spouse			
Child in Common	-29.9%	-51.7%	-37.3%
Dating Relationship	-51.8%	-14.9%	-33.6%
Same-Sex Relationship			
Former Spouse	-55.2%	+7.5%	-44.6%
Former Dating Relationship	-51.8%	-47.9%	-46.3%
Victim was Offender	-50.5%	+295.9%	-99.8%
Offender Substance Use			
No Substance	(Reference)	(Reference)	(Reference)
Alcohol	+90.6%	+74.9%	+411.1%
Drugs			+248.0%
Weapon Use (Reference = None)			
Firearm	+24.0%	+227.8%	NA
Melee Weapon	+42.3%	+64.2%	NA
Other Weapon			NA
Victim Injury (Reference = None)			
Minor Injury	+57.4%	+137.6%	NA
Severe Injury	+68.2%	+80.1%	NA
Fatal Injury			NA
Victim Demographics			(Reference)
Female (Reference = Male)			NA
Age	+0.6%	-3.4%	+0.6%
Age^2	-0.2%	+0.2%	
White	(Reference)	(Reference)	(Reference)
African American	-31.1%	+43.3%	NA
American Indian			NA
Asian			NA
Unknown Race			NA
Offender Demographics			
Female (Reference = Male)			NA
Age	-0.3%	+4.8%	+1.6%
Age^2	+0.2%	-0.3%	
White	(Reference)	(Reference)	(Reference)
African American	-16.2%	-28.1%	NA
American Indian	+43.6%	-32.8%	NA
Asian			NA
Unknown Race	-28.0%	-9.7%	NA

Note: Full models included in the Technical Appendix. NA = Variable could not be included in the model. All reported percentages are statistically significant at $p < 0.05$.

Community-Level Variation in IPV Victimization Rates

The final analyses reported here examine how community characteristics (e.g., demographics, economics, police force strength) are associated with rates of IPV victimization. This analysis reports on 388 reporting agencies that could be tied to a designated census place, and does not include agencies such as county sheriff's offices and MSP posts. The variables included, their descriptions, and sources are located in Table 13.

Table 13. County Covariates used in Multivariate Modeling

Covariate	Description	Source
Population Density	Total population divided by square miles of land area.	American Community Survey (2009-2013)
Police Strength	Rate of sworn law enforcement officers per 10,000 population	Uniform Crime Reports (2013)
Racial/Ethnic Heterogeneity	Herfindahl index for Black, Asian, American Indian, Hispanic, and White residents.	American Community Survey (2009-2013)
Foreign Born Population	% population not born in the United States	American Community Survey (2009-2013)
Concentrated Disadvantage	Weighted factor score extracted from % in poverty, % unemployed, % single parent households, median household income, and % receiving supplemental security income ($\alpha = 0.91$)	American Community Survey (2009-2013)
Income Inequality	Gini Index of income inequality	American Community Survey (2009-2013)
Residential Instability	Weighted factor score extracted from % moved in past 5 years, % renter occupied households, and % vacant households ($\alpha = 0.81$)	American Community Survey (2009-2013)
Ruralness	Urban-Rural Continuum Code; 1-9, from most urban to most rural	US Department of Agriculture, 2013

Table 14 presents the results of a negative binomial regression analysis of IPV victimization across 388 Michigan law enforcement agencies. These models are offset by two times the jurisdiction population (accounting for multiple years of data), making the estimates akin to changes in the rates of IPV victimization. An incident rate ratio (IRR) greater than 1 suggests that the variable is associated with increases in IPV, and an IRR lower than 1 suggests decreases in IPV. Across all offense types, increases in police strength predicted higher IPV victimization rates, suggesting that jurisdictions with larger police forces tend to have more IPV incidents reported. Concentrated disadvantage was another variable that was consistently associated with IPV, where increases in disadvantage were predicted to increase IPV rates. Other variables were only associated with one or two of the IPV offense types. For instance, more rural jurisdictions had higher reported sexual IPV victimization rates, and jurisdictions with greater racial/ethnic heterogeneity were associated with higher physical and intimidation IPV rates.

Table 14. Negative Binomial Regression of Community Characteristics on IPV Offense Types (N = 388)

Covariate	**Physical IPV** IRR (SE)	**Sexual IPV** IRR (SE)	**Intimidation IPV** IRR (SE)
Intercept	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***
Population Density[a]	1.03 (0.04)	0.98 (0.06)	1.02 (0.07)
Police Strength[a]	1.64 (0.10)***	1.99 (0.18)***	1.67 (0.17)***
Racial/Ethnic Heterogeneity[a]	1.18 (0.06)***	1.05 (0.08)	1.18 (0.09)*
% Foreign Born[a]	0.73 (0.12)	0.89 (0.19)	1.01 (0.25)
Concentrated Disadvantage	1.44 (0.06)***	1.29 (0.07)***	1.30 (0.08)***
Income Inequality[b]	0.89 (0.04)**	0.84 (0.05)**	0.92 (0.06)
Residential Instability	1.15 (0.05)***	1.17 (0.07)**	1.01 (0.06)
Ruralness	0.98 (0.02)	1.10 (0.04)**	0.96 (0.03)
-2 Log-Likelihood	-3,450.88	-1,217.31	-2,244.70
Theta (SE)	2.42 (0.19)	3.71 (0.79)	1.19 (0.11)
McFadden R^2	0.20	0.25	0.18

Notes: * $p < 0.05$; ** $p < 0.01$, *** $p < 0.001$

[a] Covariate is logged

[b] Covariate is standardized

Table 15 examines how community characteristics are associated with victimization rates for white and minority IPV victims. There are several notable differences between victimization correlates for the two groups. Victimization rates are higher for minorities in areas with increased population density, but this same effect is not found for white victims. Minority victimization rates are also lower in jurisdictions with higher foreign born populations – a protective effect that is not observed for white victims.

Table 15. Negative Binomial Regression of Community Characteristics on Overall IPV by Victim Race/Ethnicity (N = 388)

Covariate	**White Victims** IRR (SE)	**Minority Victims** IRR (SE)
Intercept	0.00 (0.00)***	0.00 (0.00)***
Population Density[a]	0.99 (0.04)	1.21 (0.08)**
Police Strength[a]	1.61 (0.10)***	1.87 (0.17)***
Racial/Ethnic Heterogeneity[a]	1.11 (0.05)*	1.17 (0.10)
% Foreign Born[a]	0.78 (0.13)	0.58 (0.13)*
Concentrated Disadvantage	1.45 (0.06)***	1.18 (0.07)**
Income Inequality[b]	0.89 (0.04)**	0.91 (0.05)
Residential Instability	1.17 (0.05)***	1.01 (0.06)
Ruralness	0.99 (0.02)	0.97 (0.03)
-2 Log-Likelihood	-3,407.87	-2,155.74
Theta (SE)	2.50 (0.20)	1.64 (0.17)
McFadden R^2	0.16	0.26

Notes: * $p < 0.05$; ** $p < 0.01$, *** $p < 0.001$

[a] Covariate is logged

[b] Covariate is standardized

Technical Appendix: Logit Regression Models for Arrests

Appendix Table 1. Logit Regression of Factors associated with Odds of Arrest – Overall IPV (Unique Victims) (N = 86,975)

	Estimate (SE)	% Change in Arrest Odds	Statistical Significance
Offense Type			
Physical IPV	(Reference)		
Sexual IPV	-1.36 (0.16)	-74.5%	***
Intimidation IPV	-2.13 (0.12)	-88.1%	***
Incident Structure			
Single Victim / Single Offender	(Reference)		
Single Victim / Multi. Offenders	0.36 (0.28)		
Multi. Victim / Single Offender	0.45 (0.24)		
Multi. Victims / Multi. Offenders	-1.15 (0.15)	-68.3%	***
Victim-Offender Relationship			
Spouse	(Reference)		
Common Law Spouse	0.18 (0.08)	+19.6%	*
Child in Common	-0.34 (0.07)	-28.7%	***
Dating Relationship	-0.10 (0.04)	-9.4%	*
Same-Sex Relationship	0.07 (0.08)		
Former Spouse	-0.78 (0.05)	-54.3%	***
Former Dating Relationship	-0.69 (0.07)	-49.9%	***
Victim was Offender	-0.67 (0.23)	-48.7%	**
Offender Substance Use			
No Substance	(Reference)		
Alcohol	0.67 (0.08)	+95.9%	***
Drugs	0.31 (0.13)	+35.8%	*
Victim Demographics			
Female (Reference = Male)	-0.08 (0.05)		
Age	0.01 (0.00)	+0.6%	***
Age^2	-0.00 (0.00)	-0.2%	***
White	(Reference)		
African American	-0.38 (0.12)	-31.7%	**
American Indian	-0.08 (0.17)		
Asian	0.04 (0.16)		
Unknown Race	0.03 (0.07)		
Offender Demographics			
Female (Reference = Male)	0.01 (0.08)		
Age	-0.00 (0.00)		
Age^2	0.00 (0.00)		
White	(Reference)		
African American	-0.13 (0.07)		
American Indian	0.33 (0.13)	-12.4%	**
Asian	0.37 (0.18)	39.5%	*
Unknown Race	-0.33 (0.09)	-27.8%	***
Intercept	0.18 (0.08)		

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Standard errors clustered on the reporting agency.

Appendix Table 2. Logit Regression of Factors associated with Odds of Arrest – Physical IPV (Unique Victims) (N = 74,304)

	Estimate (SE)	% Change in Arrest Odds	Statistical Significance
Incident Structure			
Single Victim / Single Offender	(Reference)		
Single Victim / Multi. Offenders	0.22 (0.30)		
Multi. Victim / Single Offender	0.33 (0.25)		
Multi. Victims / Multi. Offenders	-1.12 (0.15)	-67.4%	***
Victim-Offender Relationship			
Spouse	(Reference)		
Common Law Spouse	0.15 (0.08)		
Child in Common	-0.36 (0.06)	-29.9%	***
Dating Relationship	-0.14 (0.04)	-51.8%	**
Same-Sex Relationship	0.01 (0.08)		
Former Spouse	-0.80 (0.06)	-55.2%	***
Former Dating Relationship	-0.73 (0.07)	-51.8%	***
Victim was Offender	-0.70 (0.23)	-50.5%	**
Offender Substance Use			
No Substance	(Reference)		
Alcohol	0.65 (0.09)	+90.6%	**
Drugs	0.25 (0.14)		
Weapon Use			
Firearm	0.22 (0.07)	+24.0%	**
Melee Weapon	0.35 (0.7)	+42.3%	***
Other Weapon	-0.02 (0.04)		
Victim Injury			
Minor Injury	0.45 (0.06)	+57.4%	***
Severe Injury	0.52 (0.09)	+68.2%	***
Fatal Injury	0.29 (0.34)		
Victim Demographics			
Female (Reference = Male)	-0.08 (0.05)		
Age	0.01 (0.00)	+0.6%	***
Age^2	-0.00 (0.00)	-0.2%	***
White	(Reference)		
African American	-0.37 (0.12)	-31.1%	**
American Indian	-0.11 (0.16)		
Asian	0.12 (0.16)		
Unknown Race	0.05 (0.07)		
Offender Demographics			
Female (Reference = Male)	0.00 (0.08)		
Age	-0.00 (0.00)	-0.3%	*
Age^2	0.00 (0.00)	+0.2%	*
White	(Reference)		
African American	-0.18 (0.07)	-16.2%	*
American Indian	0.36 (0.13)	+43.6%	**
Asian	0.23 (0.18)		
Unknown Race	-0.33 (0.09)	-28.0%	***
Intercept	-0.05 (0.08)		

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Standard errors clustered on the reporting agency.

Appendix Table 3. Logit Regression of Factors associated with Odds of Arrest – Sexual IPV (Unique Victims) (N = 1,752)

	Estimate (SE)	% Change in Arrest Odds	Statistical Significance
Incident Structure			
Single Victim / Single Offender	(Reference)		
Single Victim / Multi. Offenders	0.69 (0.57)		
Multi. Victim / Single Offender	2.87 (0.85)		
Multi. Victims / Multi. Offenders	-0.39 (0.75)	-32.4%	***
Victim-Offender Relationship			
Spouse	(Reference)		
Common Law Spouse	-1.12 (0.60)		
Child in Common	-0.73 (0.51)	-51.7%	***
Dating Relationship	-0.16 (0.25)	-14.9%	**
Same-Sex Relationship	-0.56 (0.61)		
Former Spouse	0.07 (0.55)	+7.5%	***
Former Dating Relationship	-0.65 (0.30)	-47.9%	***
Victim was Offender	1.38 (1.26)	+295.9%	**
Offender Substance Use			
No Substance	(Reference)		
Alcohol	0.56 (0.23)	+74.9%	**
Drugs	0.15 (0.15)		
Weapon Use			
Firearm	1.19 (0.64)	+227.8%	**
Melee Weapon	0.50 (0.50)	+64.2%	***
Other Weapon	-0.09 (0.52)		
Victim Injury			
Minor Injury	0.87 (0.19)	+137.6%	***
Severe Injury	0.59 (0.33)	+80.1%	***
Victim Demographics			
Female (Reference = Male)	0.71 (0.43)		
Age	-0.03 (0.01)	-3.4%	***
Age^2	0.00 (0.00)	+0.2%	***
White	(Reference)		
African American	0.36 (0.23)	+43.3%	**
American Indian	-5.75 (1.14)		
Asian	-0.13 (0.72)		
Unknown Race	-0.95 (0.61)		
Offender Demographics			
Female (Reference = Male)	0.65 (0.50)		
Age	0.05 (0.01)	+4.8%	*
Age^2	-0.00 (0.00)	-0.3%	*
White	(Reference)		
African American	-0.33 (0.22)	-28.1%	*
American Indian	-0.40 (1.38)	-32.8%	**
Asian	-0.02 (1.07)		
Unknown Race	-0.10 (0.31)	-9.7%	***
Intercept	-2.25 (0.49)		

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Standard errors clustered on the reporting agency.

Appendix Table 4. Logit Regression of Factors associated with Odds of Arrest – Intimidation IPV (Unique Victims) (N = 10,220)

	Estimate (SE)	% Change in Arrest Odds	Statistical Significance
Incident Structure			
Single Victim / Single Offender	(Reference)		
Single Victim / Multi. Offenders	2.45 (0.49)	+1,057.5%	***
Multi. Victim / Single Offender	1.58 (0.65)	+384.2%	*
Multi. Victims / Multi. Offenders	-0.07 (1.10)		
Victim-Offender Relationship			
Spouse	(Reference)		
Common Law Spouse	0.49 (0.40)		
Child in Common	-0.47 (0.22)	-37.3%	*
Dating Relationship	0.41 (0.21)	-33.6%	*
Same-Sex Relationship	-0.03 (0.46)		
Former Spouse	-0.59 (0.17)	-44.6%	***
Former Dating Relationship	-0.62 (0.18)	-46.3%	***
Victim was Offender	-6.15 (1.12)	-99.8%	***
Offender Substance Use			
No Substance	(Reference)		
Alcohol	1.63 (0.33)	+411.1%	***
Drugs	1.25 (0.43)	+248.0%	**
Victim Demographics			
Age	-0.01 (0.01)	+0.6%	
Age^2	0.00 (0.00)	-0.2%	
Offender Demographics			
Age	0.02 (0.01)	+1.6%	*
Age^2	-0.00 (0.00)		
Intercept	-2.21 (0.24)		

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Standard errors clustered on the reporting agency. Several covariates could not be included in the intimidation model due to small cell sizes and separation.

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