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RECENT TRENDS IN INTIMATE PARTNER HOMICIDE RISK

RECENT TRENDS IN INTIMATE PARTNER HOMICIDE RISK IN NORTH AMERICA: COHABITING AND MARRIED VICTIMS

By BRIDIE JAMES, B.A., B.PsySc (Hons)

A Thesis Submitted to the School of Graduate Studies in Partial Fulfilment of the Requirements for the Degree Master of Science

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TITLE: Recent trends in intimate partner homicide risk in North America: Cohabiting and married victims AUTHOR: Bridie James, B.A., B.PsySc(Hons) SUPERVISOR: Professor Martin Daly NUMBER OF PAGES: xi, 68

Abstract

Cohabiting with a partner, rather than living in a legal marriage, has been documented as a significant risk factor for intimate partner homicide. This study used national U.S. homicide data from 1990-2005 to examine changes in risk patterns. The results showed that both male and female cohabiting victims experienced a steep decline in intimate partner homicide rates. Such was the strength of this decline that by 2005 cohabiting couples were no longer at higher risk than married couples. A similar, though weaker, trend was found in Canada between 1991 and 2006. It was hypothesised that this convergence of cohabiting and married homicide rates was due to cohabiting and married populations becoming more similar in terms of socio-demographic variables. Contrary to expectation, over time, the U.S. and Canadian cohabiting populations remained younger, poorer, less educated, and less conventional, than their married counterparts. This suggests that demographic changes were not responsible for the decline in cohabiting homicide rates. Further research is required to determine whether changes in union characteristics may have driven the decline in cohabiting homicide risk.

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Many thanks to my supervisor Martin Daly, who was an inspiring and reliable guide (even from the sunny realm of retirement!). Thanks also to Danny Krupp, Nick Rogerson, and my sun lamp, for making McMaster a brighter place to work. Finally, a big thank you to Steve Dingwall for rescuing my thesis from MS Word death, and for being The Best Boyfriend In The World.

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Declaration of Academic Achievement

I, Bridie James, declare this thesis to be my own work. Guidance was provided at all stages by my supervisor Dr. Martin Daly. Advice was also provided by the other members of my committee: Dr. Patrick Bennett and Dr. David Feinberg.

Recent trends in intimate partner homicide risk in North America: Cohabiting and married victims

Intimate partner homicide has received considerable attention over the last three decades. Over one-third of all female homicide victims in the United States are killed by their intimate partners, compared with only about two-and-a-half percent of male victims (Fox & Swatt, 2009). Even though there has been little change in this pattern over time, intimate partner homicide rates have declined substantially since the 1970s, for both male and female victims (Dugan, Nagin, & Rosenfeld, 1999; Fox & Zawitz, 2007; Greenfeld et al., 1998; Puzone, Saltzman, Kresnow, Thompson, & Mercy, 2000).

Risk Factors for Intimate Partner Homicide

Despite this decline, research shows that some people are at much higher risk of victimisation than others. It is these risk factors – that cover situational, relationship, demographic, and socioeconomic domains – that have become the focus of the majority of research on intimate partner homicide. Some examples of risk factors that have been examined are rurality (Gallup-Black, 2005; Jennings & Piquero, 2008), domestic violence history (Dobash, Dobash, Cavanagh, & Medina-Ariza, 2007), partner jealousy (Dobash, Dobash, & Cavanagh, 2009; Dobash, et al., 2007), age (Breitman, Shackelford, & Block, 2004), race (Block & Christakos, 1995), education, employment status (Dobash, et al., 2007), and union type (Wilson, Daly, & Wright, 1993). Of particular interest in the current study is the victim-perpetrator union type, which is strongly related to the level of homicide risk for both male and female victims.

The Rise of Cohabitation

Cohabiting couple unions make up a substantial proportion of all unions – a trend that has been widely reported in many countries, including the United States (see Smock, 2000 for a review), Canada (Martin & Hou, 2010), Australia (Pink, 2008), and much of Europe (Kasearu & Kutsar, 2011; Syltevik, 2010). Charting the rise in cohabitation in the United States has been difficult because cohabitation was not measured directly on any large scale until the 1990 Census. However, a conservative estimate is that the cohabiting population increased 28 fold between 1960 and 2000 (Fitch, Goeken, & Ruggles, 2005). These increases are not confined to the social upheavals of the 1970s, as the U.S. Census Bureau estimated that cohabiting households rose from 3.5 percent of all households in 1990, to 5.2 percent in 2000 (Simmons & O'Neill, 2001). The increasing popularity of cohabitation as the union of choice has been met with some concern, as cohabitation has been linked to increased homicide risk (Shackelford & Mouzos, 2005).

Cohabitation and Excessive Homicide Risk

In a study of Canadian homicides from 1974 to 1990, Wilson, Daly, and Wright (1993), found that cohabiting women were 8.4 times more likely to be killed by their partners than were married women, while cohabiting men were fifteen times more likely to be killed by their partners than were married men. This large risk differential is not unique to Canada, as Shackelford and Mouzos (2005) examined intimate partner homicides in the United States between 1989 and 2000, and found that cohabiting women were nine times more likely to be killed by their partners than were married women. In a separate study of the same period, cohabiting men were ten times more likely to be killed

by their partners than were married men (Mouzos & Shackelford, 2004). This pattern of excessive risk for cohabiting couples has also been replicated using Australian homicide data from 1989 to 2002 (Mouzos & Shackelford, 2004; Shackelford & Mouzos, 2005).

Cohabitation and Non-Lethal Violence

One can consider intimate partner violence as comprised of a spectrum of severity, with intimate partner homicide as the most severe. Not only are cohabiting couples at higher risk of homicide, they appear to be at higher risk across the spectrum of intimate partner violence. Stets and Straus (1989) conducted a survey of dating, cohabiting, and married couples in the United States. They found that cohabiting couples reported the highest rate of violence, and the most severe forms of violence. These differences remained after controlling for age, education, and occupation. In a more recent study, Brown and Bulanda (2008) examined data from the 2001-2002 United States Add Health study. As part of this survey, dating, cohabiting, and married couples were asked about experiences of violence in their relationship. Brown and Bulanda found that cohabiting women were twice as likely as married women (and three times as likely as dating women) to have experienced violence in the previous year. This effect was independent of sociodemographic, family of origin, and relationship factors. In this study there was no difference found in the level of violence reported by cohabiting and married men, although both experienced more violence than dating men. Wilson, Johnson, and Daly (1995) found a similar pattern in Canada when they examined data from the 1993 Violence Against Women survey. In this sample, cohabiting women were 4.5 times more likely than married women to report physical violence by their partners in the past year.

Socio-Demographics of Married and Cohabiting Populations

To answer the question of why cohabiting unions are more violent than marriages, one must ask how cohabiting and married populations differ. The demographic profiles of cohabiting and married populations have some notable differences. Compared to married couples, those who cohabit tend to be younger (Lichter, Turner, & Sassler, 2010; Stets, 1991), have lower yearly incomes (Hardie & Lucas, 2010; Prokos & Keene, 2010) and lower education levels (Brown & Bulanda, 2008; Bumpass & Sweet, 1989). All of these factors are associated with violent victimisation (Breiding, Black, & Ryan, 2008; Dobrin, Lee, & Price, 2005; Stickley & Carlson, 2010). People in cohabiting unions are also more likely to be unemployed (Borooah, 2002; Rindfuss & Vandenheuvel, 1990), which has been linked to increased risk of violent victimisation (Campbell et al., 2003; Dobrin, et al., 2005; Faergemann, Lauritsen, Brink, Skov, & Mortensen, 2009; Hougen, Rogde, & Poulsen, 1999), and the perpetration of crime more generally (Lee & Holoviak, 2006).

Even though the demographic variables discussed above are correlated with crime, evidence suggests that differences in relationship violence between cohabiting and married couples persist after demographic variables are controlled for. In a nationally representative U.S. sample, Stets and Straus (1989) found that cohabiting couples had a higher rate of assault than married couples, and this pattern held after controlling for age, education, and occupational status. Using a different U.S. sample, Stets (1991) found that cohabiting couples were more likely to report using physical aggression against their partner. This effect was attenuated, but remained significant, after controlling for age,

race, and education. In terms of homicide, research has shown that the differentially high risk of cohabiting couples is maintained when age is controlled for (Mouzos & Shackelford, 2004; Shackelford & Mouzos, 2005; Wilson, et al., 1993). These studies suggest that demographics are not the only, or even the most salient, factor that affects the likelihood of intimate partner violence.

Union Characteristics: The Presence of Children

In addition to the demographic and socioeconomic variables discussed above, cohabiting and married populations differ in terms of union characteristics. Cohabiting unions are more likely to be childless (Brown, 2003; Leridon, 1990; Manning, 1995), and if children are present, they are often stepchildren (Brown, 2003; Daly & Wilson, 1996; Kennedy & Bumpass, 2008). According to Statistics Canada (2004), in 1995, 48% of all cohabiting unions with children included stepchildren. This compared with only 6% for married unions. The situation appears to be similar in the United States. Using the National Survey of Families and Households from 1987-1988, Brown (2003) reported that almost half of all cohabiting unions with children present included stepchildren. Unfortunately Brown did not include the equivalent data for married unions; however, using the same survey data, Stewart (2001) reported that 6% of married unions with children had stepchildren.

The presence of children encourages solidarity between couples, whereas childlessness can undermine solidarity (Rasmussen, 1981). However, children only promote solidarity if they are a couple's joint biological children. Stepchildren, in comparison, are associated with increased conflict between couples (Brewer & Paulsen,

1999; Campbell, et al., 2003; Daly, Wiseman, & Wilson, 1997; Wilson, Daly, & Daniele, 1995). The opposing effects of biological children and stepchildren are based on parental investment. A couple's biological child represents a common purpose, where both parents are equally invested in the child's welfare. In contrast, in a blended family, the stepparent and biological parent are differentially invested in the child. It is this mismatch of interests that is theorised to increase couple conflict (Daly & Wilson, 1996).

Union Characteristics: Stability and Commitment

Cohabiting unions also differ from marriages in terms of stability and commitment level. Bumpass and Sweet (1989) estimated that 40% of cohabiting unions in the U.S. ended within the first year, while only 10% endured for at least five years. On average, cohabiting unions in the U.S. last just under three years, while the average marriage lasts over five (Brown, 2003). Moreover, perceived relationship instability increases with union duration for cohabiting couples, which is not the case for married couples (Brown, 2003). In addition to being less stable, cohabiting unions tend to be less committed than marriages. Treas and Giesen (2000) found that even after controlling for a host of demographic and situational factors, and sexual values, a nationally representative U.S. sample of cohabiting couples were more than twice as likely as married couples to have engaged in infidelity in the past year. Drawing on data from another nationally representative U.S. survey, Forste and Tanfer (1996) reported that 20% of cohabiting women had a secondary sexual partner, compared to only 4% of married women. When stability and commitment in a union are low, the potential for conflict is

heightened, and violence may be employed as an alternate method of control (Wilson & Daly, 2001).

Control in Intimate Partner Relationships

The use of non-lethal violence and threats of homicide have been documented as effective control tactics in relationships (Daly, Wilson, & Weghorst, 1982; Polk & Ranson, 1991; Showalter, Bonnie, & Roddy, 1980). Male attempts to control mating partners are ubiquitous in the animal kingdom (e.g., Parker & Vahed, 2010; Raveh et al., 2011; Serran & Firestone, 2004). Where paternal investment in offspring exists, males are motivated to ensure that the offspring their mates carry are not the progeny of rival males. Attempted control of mates is evident in humans, as male jealousy and proprietariness have been identified as salient factors in many lethal and non-lethal assaults on female intimate partners (Dobash, et al., 2007; Showalter, et al., 1980; Wilson & Daly, 1993).

Male proprietariness may explain the higher rates of male on female violence in cohabiting relationships, but the implications for female on male violence require further elaboration. One must consider how the motivations for female perpetrated and male perpetrated violence differ. Whereas male perpetrated violence is usually associated with jealousy and attempts to control the female partner (Dobash, et al., 2007; Wilson & Daly, 1993), female perpetrated violence tends to be defensive in nature (Dobash & Dobash, 1984; Polk & Ranson, 1991; Saunders, 1986; Swatt & He, 2006). Compelling evidence for the defensive nature of female perpetrated violence is the relationship between resource availability (such as women's shelters, battered women programs, and domestic

violence legislation) and homicide rates. Browne and Williams (1989) found that resource availability was associated with a decline in female- but *not* male- perpetrated intimate partner homicide in the United States between 1976 and 1984. Dugan, Nagin, and Rosenfeld (1999) reported similar results after examining intimate partner homicides in 29 large United States cities between 1976 and 1992. This research highlights the different motivations of female- and male-perpetrated violence, as it suggests that when alternate methods of escape are available, women are less likely to resort to lethal violence. If female-perpetrated violence is primarily defensive in nature, it is reasonable to suppose that a higher base rate of male on female violence in cohabiting couples could lead to higher levels of female on male violence. In this way, union instability and low commitment may lead to increased male victimisation indirectly through male proprietariness and control tactics.

The Existing Literature

The United States Bureau of Justice Statistics has reported that intimate partner homicide has been declining (Fox & Zawitz, 2007). What is as yet unclear is whether this general decline applies equally to cohabiting and married victims. Given the unique combination of risk factors associated with cohabiting unions, and a rapidly expanding cohabiting population, it is likely that the reported decline in homicide rates does not apply equally to married and cohabiting couples. Unfortunately this question could not be addressed by consulting the existing literature, as the results of recent studies obscure the picture by either combining married and cohabiting victims (Dawson, Bunge, & Balde, 2009; Puzone, et al., 2000), or by using inappropriate denominator data (Browne &

Williams, 1993). As in any epidemiological analysis, incident rates should be calculated relative to the population in question. This requires specific, rather than general, population estimates for the denominator. In terms of calculating homicide rates, separate estimates of the cohabiting and married populations are required. Studies that use inappropriate denominator data, such as Brown and Williams (1993), tend to use a general denominator. For example, when calculating the homicide rate for wife victims, the researchers used the number of women in the population, rather than the number of wives. Other recent studies do not have these flaws; however, they average homicide counts over year spans, rather than using a longitudinal approach (Mouzos & Shackelford, 2004; Shackelford & Mouzos, 2005). This method precludes an analysis of changes over time.

The Current Study

In the current study I address these gaps in the literature by analysing relationship groups separately and calculating homicide rates with appropriate denominator data. By taking these steps I aim to create an accurate picture of how intimate partner homicide rates have changed since 1990, and to assess whether rates have declined similarly for married and cohabiting victims.

United States

Homicide Data

The Supplementary Homicide Reports are a national database of homicides committed in the United States. The database is maintained by the FBI, which relies on local law enforcement agencies to report incidents every month. Although reporting is

voluntary, coverage is estimated to be approximately 94% (Federal Bureau of Investigation, 2009). The Supplementary Homicide Reports contain incident level information, including location, circumstances, and weapon, as well as the ages of each victim and perpetrator and the relationship between the two. The data file used in the current study was released by Fox and Swatt (2009), and is publicly available via the Inter-university Consortium for Political and Social Research.

Homicides included in this study are limited to cases of murder and non-negligent manslaughter between the years of 1990 and 2005 where there was only one perpetrator, and where the victim-offender relationship was listed as wife, husband, common law wife, or common law husband. These 13,619 cases were further refined by excluding incidents where either the victim or the offender was under 15 years of age, or where age information was missing. This left a total of 13,083 cases (see Table 1).

Table 1.
Victims of intimate partner homicide aged 15 years and older, by relationship type, U.S., 1990-2005.

Relationship of victim to offender	N	Victim's mean age (range)	Perpetrator's mean age (range)
Married			
Wife	8820	41.85 (15-98)	45.22 (17-98)
Husband	2637	43.62 (18-95)	40.08 (15-91)
Cohabiting			
Women	1008	34.91 (16-94)	37.67 (16-85)
Men	618	38.86 (15-80)	35.22 (15-72)

Population Estimates

The 1990 Decennial Census was the first large-scale survey in the United States to ask respondents about their cohabitation status. The Current Population Survey followed suit in 1995. In surveys such as these, cohabiting couples are identified based on the 'relationship to the householder' question. The householder is commonly the owner/lease-holder of the residence. Respondents indicate their relationship to the householder by choosing from a list of options, one of which is 'unmarried partner'. A drawback of the 'relationship to the householder' question is that it is only able to identify cohabiting couples where one partner is the householder. This excludes couples who may be living in shared accommodations, or with extended family. However, it seems reasonable to assume that the 'relationship to the householder' question should adequately represent the longitudinal pattern of population change.

In the relatively rare instances when researchers have attempted to use population-specific estimates when investigating United States homicides, they have relied on the Current Population Survey (Mouzos & Shackelford, 2004; Puzone, et al., 2000; Shackelford & Mouzos, 2005). However, the Current Population Survey provides substantially smaller estimates of the cohabiting population than the Decennial Census, the American Community Survey, and the longitudinal Survey of Program Participation (Baughman, Dickert-Conlin, & Houser, 2002). All these surveys use the 'relationship to the householder' format, so the discrepancies in estimates may be due to differences in how responses are gathered, the focus of each survey, and the list of response options to the 'relationship to the householder' question.

I chose to use the Census and the American Community Survey to calculate population estimates, as these surveys underestimate the cohabiting population to a lesser extent than does the Current Population Survey. The American Community Survey is a nationally representative survey that was designed to replace the long-form Decennial Census. After a trial period in the late 1990s, it has been implemented yearly since 2000. It has a similar breadth of questions to the Census, a generous sample size (a 1-in-232 sample in 2001, which increased to 1-in-100 in 2005), and yields cohabiting estimates that are very close to Census figures. To obtain estimates for the period 1990 to 2005, it was necessary to use a combination of the Census and the American Community Survey, and to impute estimates for years 1991-1999, for which no data were available. All population estimates are based on persons aged 15 years and above. Estimates of the cohabiting population exclude same-sex couples. Estimates of the married population are based on married persons with a spouse present.

To obtain population estimates for the years between the two Decennial Censuses, I used the imputation method in SPSS 19 called 'linear interpolation', which replaces missing values with predicted values based on the surrounding values in the series (i.e., 1990 and 2000; see Figures 1 and 2). To evaluate whether a linear interpolation was appropriate, I first obtained United States Census estimates of the total population aged 15 and above between 1990 and 1999, and submitted them to regression analyses. Both male and female populations increased in an almost perfectly linear fashion from 1990 to 1999 ($\beta = 1$, $R^2_{adj} = 0.99$, $F(1,8) = 8881.28$, $p < .001$; $\beta = 1$, $R^2_{adj} = 0.99$, $F(1,8) = 5447.89$, $p < .001$, respectively).

To further evaluate the appropriateness of using linear imputation, I analysed the linearity of population change in the Census/American Community Survey estimates from 2000-2005. Both cohabiting and married couples displayed a strong linear trend during this period ($\beta = .99$, $R^2_{adj} = 0.97$, $F(1,4) = 168.57$, $p < .001$; and $\beta = .97$, $R^2_{adj} = 0.95$, $F(1,4) = 68.89$, $p = .001$, respectively).

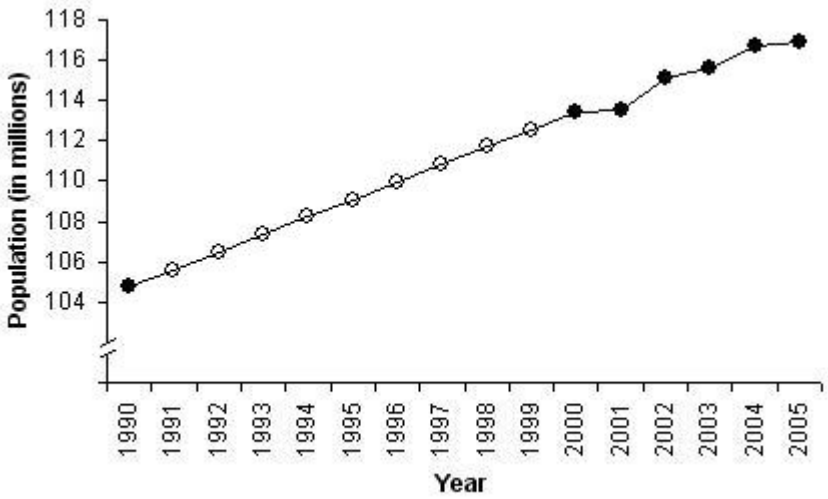

Figure 1. Population estimates of married persons, U.S., 1990-2005. Open circles represent imputed estimates.

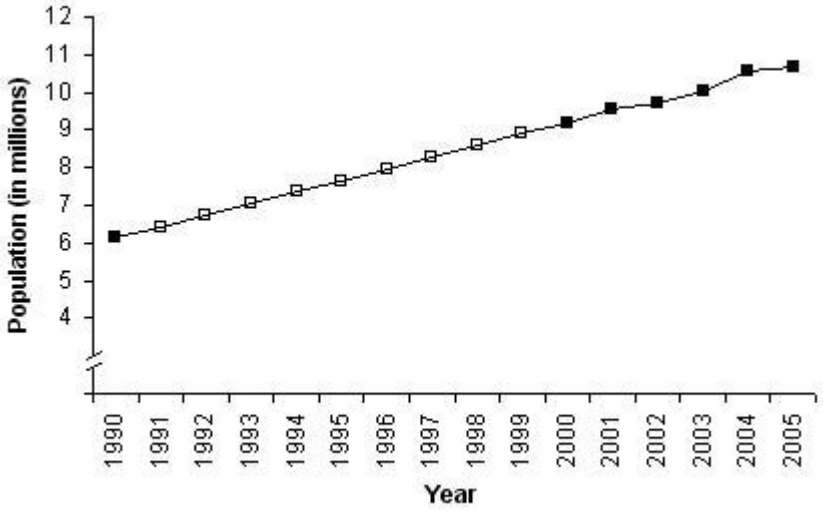

Figure 2. Population estimates of cohabiting persons, U.S., 1990-2005. Open squares represent imputed estimates.

Results

Homicide Trajectories

There has been a general decline in homicides for both male (see Figure 3) and female victims (see Figure 4). Between 1990 and 2005 male victims maintained a higher homicide rate than females, although rates for both declined (see Table 2). These analyses are based on incidents where the victim was at least 15 years of age. Cases where the sex and/or age of the victim were missing were excluded. As these were a minority (M = 1.89%) of cases each year, the effect on patterns and levels of homicide rates would be slight.

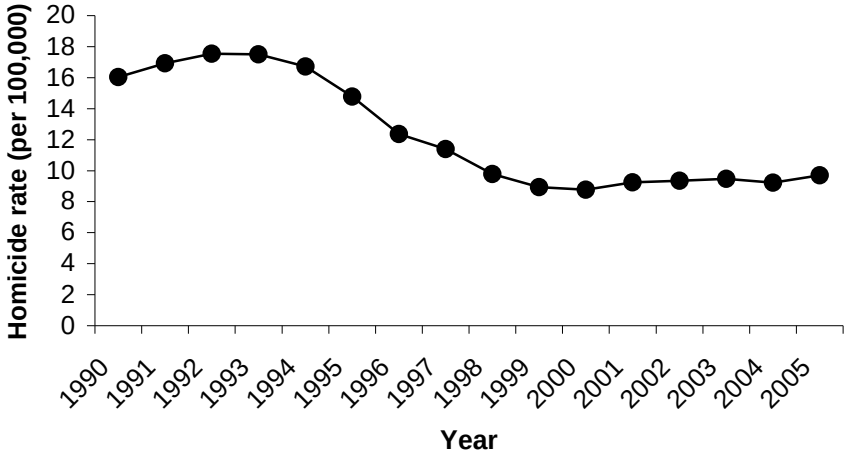

Figure 3. Homicide rate of male victims aged 15 years and above, all victim-offender relationship types, U.S., 1990-2005.

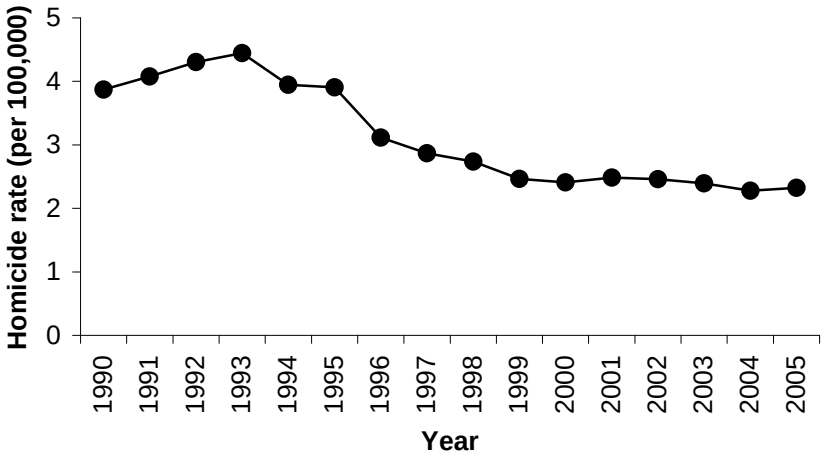

Figure 4. Homicide rate of female victims aged 15 years and above, all victim-offender relationship types, U.S., 1990-2005.

Table 2.
General homicide rates by sex of victim, U.S., 1990-2005.

	Homicide rate (per 100,000)		% rate change
Victim type	1990	2005	
Male	16.03	9.71	-39
Female	3.87	2.32	-40

Analysis of intimate partner homicides shows that rates have declined for both sexes, and both union types (see Figure 5). Exponential regression analyses show that these declines are significant; however, the decline is not equal for all groups. Cohabiting men experienced the most dramatic decline, followed by cohabiting women and husbands (see Table 3). Such is the strength of this decline for cohabiting couples, that by 2005, cohabiting women dropped below the homicide rate of wives (Figure 6), and cohabiting men approached the homicide rate of husbands (Figure 7).

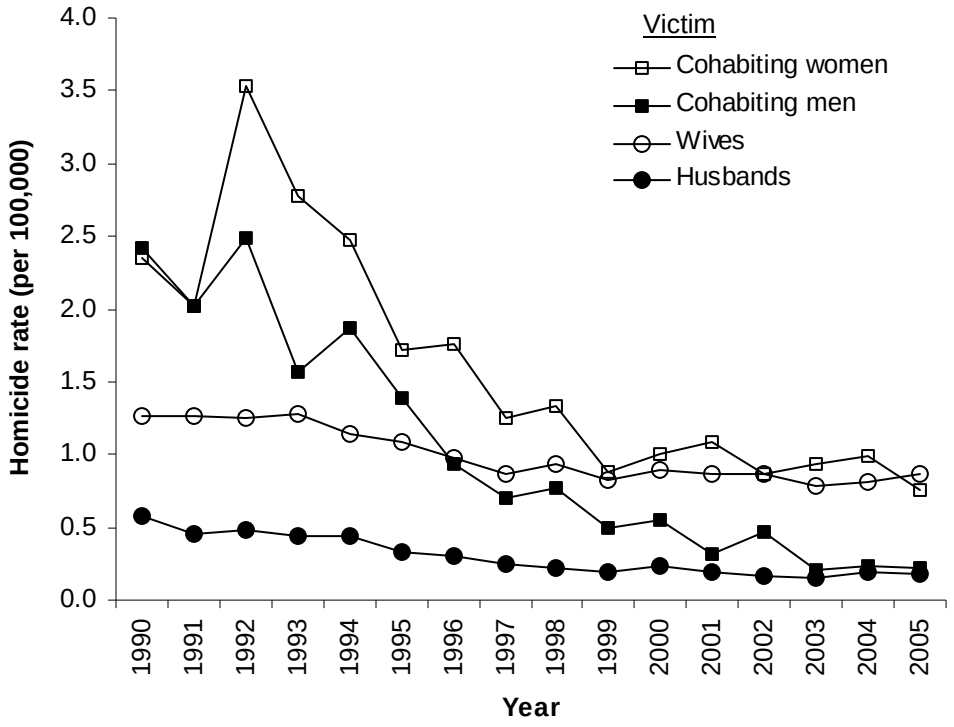

Figure 5. Homicide rates by relationship of victim to perpetrator, U.S., 1990-2005.

Table 3.
Homicide rates by relationship of victim to perpetrator, U.S., 1990-2005. Confidence intervals are based on the variance of population estimates.

Victim type	1990		2005		Exponential slope	
	Rate per 100,000 (95% CI)[a]	Union risk ratio	Rate per 100,000 (95% CI)[b]	Union risk ratio	Unstandardised ß (p value)	% rate change
Cohabiting women	2.35 (2.19-2.54)	1.85	0.75 (0.74-0.76)	0.87	-.09 (<.0001)	-68
Wives	1.27 (1.27-1.27)		0.86 (0.86-0.863)		-.04 (<.0001)	-32
Cohabiting men	2.42 (2.25-2.61)	4.22	0.23 (0.22-0.23)	1.23	-.18 (<.0001)	-91
Husbands	0.57 (0.57-0.57)		0.18 (0.18-0.18)		-.09 (<.0001)	-68

[a] Confidence intervals for 1990 were calculated using the sub sample method (U.S. Census of Population and Housing, 1992).
[b] Confidence intervals for 2005 were calculated using the replicate weight method (U.S. Census Bureau, 2005).

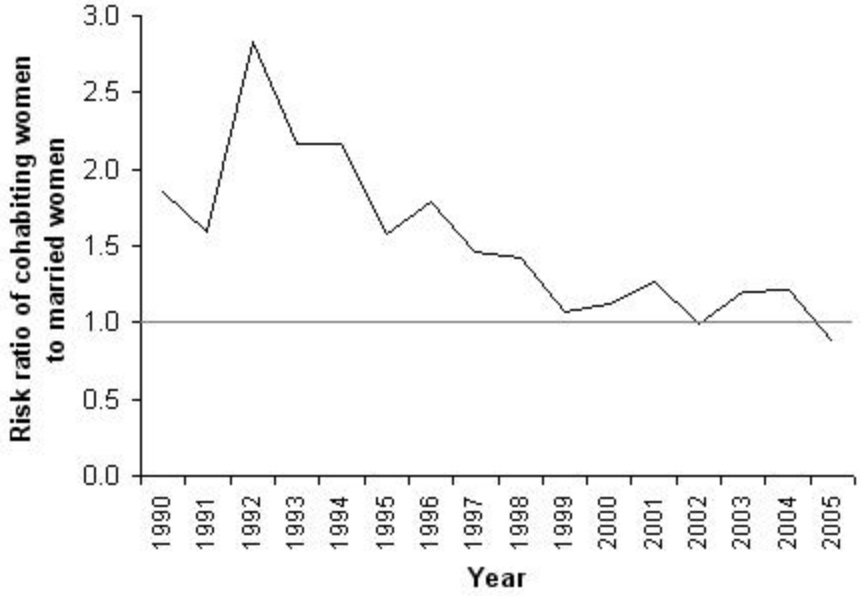

Figure 6. Homicide risk ratio of cohabiting women to married women, U.S., 1990-2005.

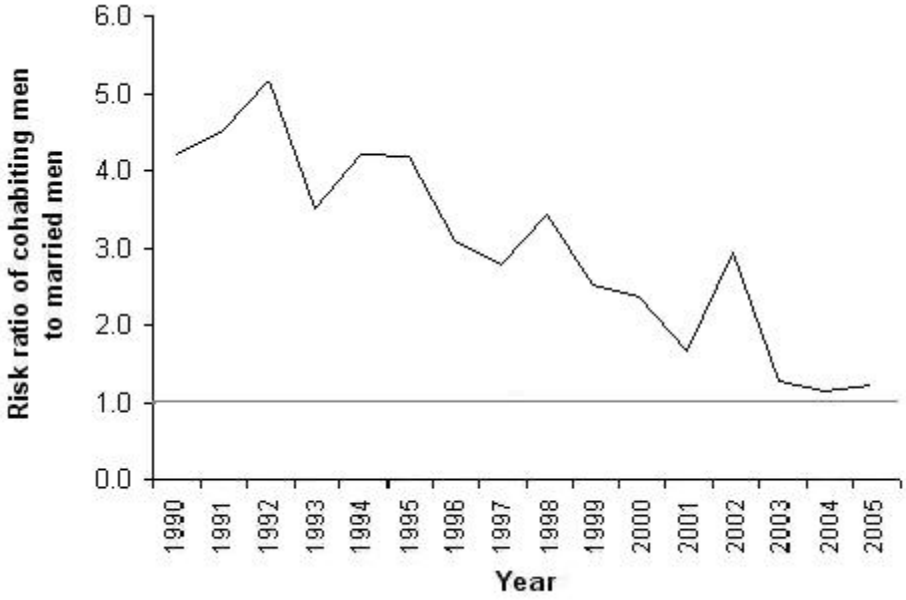

Figure 7. Homicide risk ratio of cohabiting men to married men, U.S., 1990-2005.

Age-Specific Homicide Rates

Ideally, to assess trends in age-specific homicide rates, one would track changes year-to-year. Unfortunately, because I have had to rely on imputed population estimates between 1991 and 1999, the level of information required for this type of analysis is not available. Instead, I have compared age-specific homicide rates from the beginning of the study period to those at the end of the period. These rates were calculated using population estimates for 1990 and 2005, and homicide rates that were collapsed over 1989-1991 and 2004-2006. This reduced the fluctuation caused by the small number of homicides in some age categories. As can be seen in Figure 8, for each victim type, homicide rates declined in every age group (note that the ordinate differs in each graph). Wives and husbands show a similar pattern in both year spans, with young spouses aged 15-24 at the highest risk. In contrast, the pattern of risk for cohabiting women and men changes between years. For cohabiting women in 1989-1991, the highest risk age groups are 35-44 years and 55-64 years. By 2004-2006 this pattern changed, so that 45-54 year-olds incurred the highest risk. For cohabiting women aged 65 or above, there was only a negligible decrease in homicide rate (.89 to .86 deaths per 100,000 cohabiting women) during this time. Cohabiting men experienced substantial rate decreases in all age groups, most notably in the 55-64 year old age group. By 2004-2006, the cohabiting men resembled cohabiting women, with the highest risk age group being 45-54 year-olds.

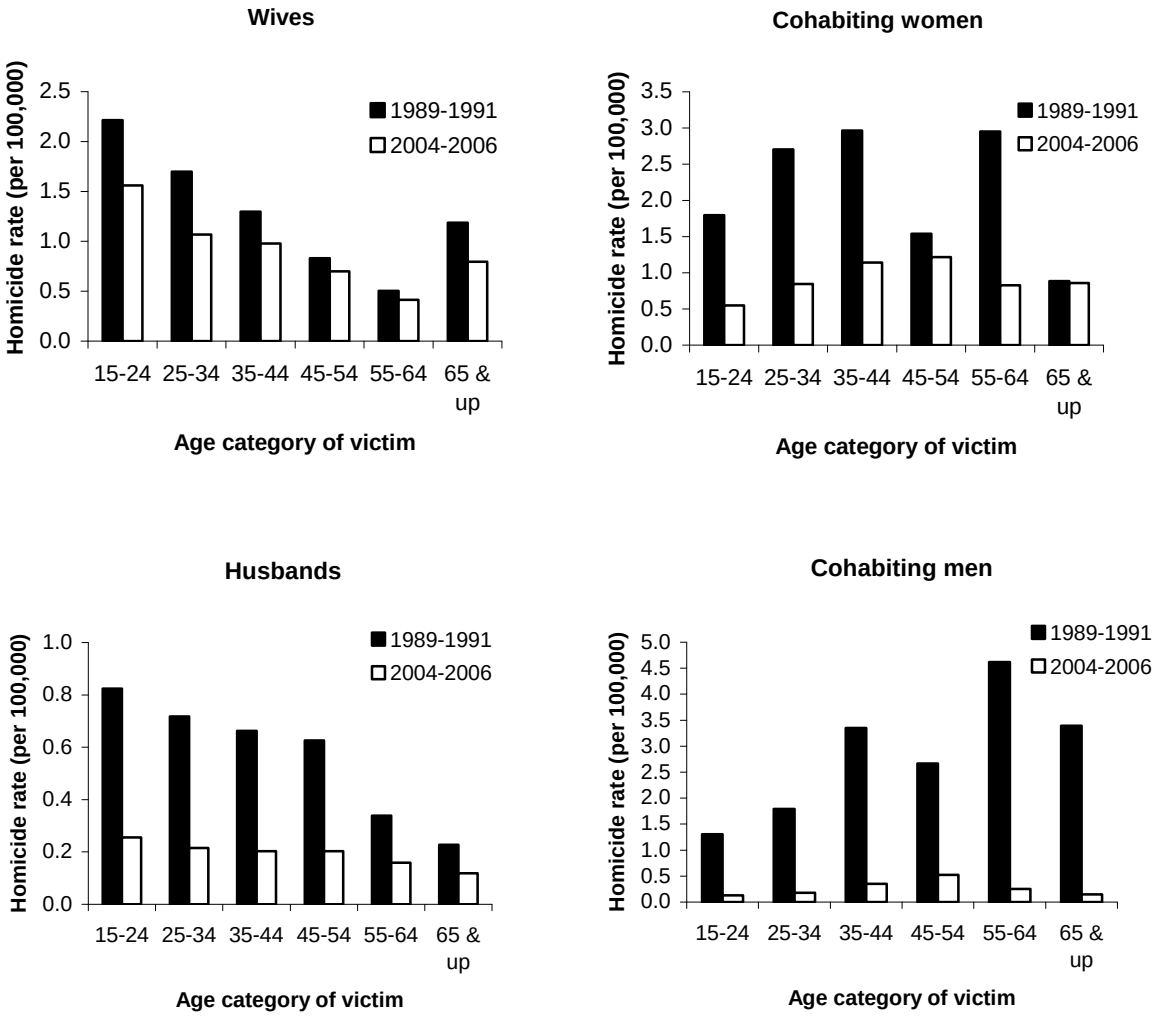

Figure 8. Homicide rates by victim-perpetrator relationship and age of victim, comparing 1989-1991 and 2004-2006, U.S. Note that the ordinate differs in each graph.

Spousal Sex Ratio of Killing

The spousal "Sex Ratio of Killing" (SROK) represents the number of male victims per 100 female victims (Wilson & Daly, 1992). The SROK is a measure of relative victimisation that does not rely on population estimates. Therefore, homicide trajectories may have concurrent SROK values that increase or decrease, or remain constant. In both cohabiting and married unions, there appears to be a trend away from equality, with generally fewer male victims each year per 100 female victims (see Table 4). A linear regression analysis supports this impression; for both cohabiting couples and married couples, there was a significant negative relationship between year and spousal SROK, (β = -4.56, $t(14) = 7.10$, $p < .001$ and β = -1.50, $t(14) = 8.62$, $p < .001$, respectively). These SROK values for cohabiting and married victims are in stark contrast to the SROK values for homicides in general that occurred in the same period (see Table 5). This is unsurprising as women are much less likely to be victims of homicide overall – a fact that is reflected in SROK values of over 300. The noteworthy contrast lies in the pattern of SROK values in intimate partner homicides, and homicides in general. Unlike intimate partner homicides, for homicides in general there appears to be no reliable trend over the period.

Table 4.
Number of homicide victims by union type and sex of victim, and spousal sex ratios of killing, U.S., 1990-2005.

Year	Cohabiting couples			Married couples		
	Male victims	Female victims	SROK	Male victims	Female victims	SROK
1990	74	72	103	300	664	45
1991	65	65	100	236	668	35
1992	84	119	71	257	665	39
1993	55	98	56	239	689	35
1994	69	91	76	241	617	39
1995	53	66	80	180	595	30
1996	37	70	53	165	540	31
1997	29	52	56	140	478	29
1998	33	57	58	125	520	24
1999	22	39	56	110	461	24
2000	25	46	54	131	505	26
2001	15	52	29	107	489	22
2002	23	42	55	93	499	19
2003	10	47	21	91	454	20
2004	12	52	23	115	472	24
2005	12	40	30	107	503	21

Table 5.
Total homicides by sex of victim, and spousal sex ratios of killing, U.S., 1990-2005.

Year	Male victims	Female victims	SROK
1990	15,055	3,925	384
1991	16,029	4,171	384
1992	16,803	4,450	378
1993	16,934	4,638	365
1994	16,352	4,161	393
1995	14,613	4,160	351
1996	12,358	3,352	369
1997	11,520	3,118	369
1998	10,011	3,004	333
1999	9,244	2,731	338
2000	9,433	2,755	342
2001	10,075	2,872	351
2002	10,308	2,875	359
2003	10,571	2,827	374
2004	10,431	2,714	384
2005	11,113	2,801	397

Discussion

The analysis of homicide rates showed that the general decline in intimate partner homicide reported by the U.S. Bureau of Justice Statistics (Fox & Zawitz, 2007) does apply to both married and cohabiting victims. However, the amount of decline was not equal for all groups. Cohabiting men experienced the greatest decline, followed by cohabiting women and married men. Married women experienced the most modest

decline. More striking was the comparative level of risk within sexes. Rates converged such that the homicide rate of cohabiting men approached the level for married men, and the homicide rate of cohabiting women approached (and dropped below) the level for married women. This surprising result shows that the very large excess risk once associated with cohabitation has disappeared.

Homicide rates for married and cohabiting men declined more than the homicide rate for men in the population at large. Homicide rates for cohabiting women also declined more than the homicide rate for women in the population at large. The same was not true for married women, for whom the reduction in intimate partner homicide victimisation was slightly less than the reduction in homicide victimisation in the population at large (–32% vs. –40%). This suggests that the factors that have been working to reduce the risk of intimate partner homicide in married men and cohabiting couples are either ineffective when it comes to married women, or are not relevant to married women.

Analysis of age-specific intimate partner homicide rates showed that although the declines were not driven by any one age group, some age groups experienced greater declines than others, and that this effect differed by union type and sex of victim. For married couples, the greatest declines were in young victims aged 15 to 34 years. The pattern of age risk also remained consistent between years. Young married men were most at risk, with a decline in risk with increasing age. This pattern remained in 2004-2006, albeit less pronounced. Married women showed the same pattern of high risk in the young age groups, with the exception of a peak in risk for wives aged 65 years and

above. These patterns in age risk have been found in England, Australia, Canada, and the United States (Mouzos & Shackelford, 2004; Shackelford & Mouzos, 2005; Wilson & Daly, 2001). The results show that the declines in risk for married couples are not an artifact of changes in the age distribution of the cohort. Furthermore, the consistent pattern in age risk between years suggests that the factors that have worked to reduce homicide risk for married couples affect all age groups.

The patterns in age risk for cohabiting victims were markedly different from married victims. Cohabiting men in the 55-64 years age group experienced the greatest level of risk in 1989-1991, with men aged 35 years and above at higher risk than young men. This pattern of higher risk for older age groups has been shown in Australia, the United States, and Canada, although with more variation than with married victims (Mouzos & Shackelford, 2004; Wilson, et al., 2001; Wilson & Daly, 1993). By 2004-2006, the pattern resembled a normal distribution with a peak at 45-54 years. Cohabiting women had a bi-modal distribution, with both the 35-44 and 55-64 year age groups at the highest risk. Middle age has been shown to be a high-risk age for cohabiting women, although the patterns between countries are less consistent than those for married women (Shackelford & Mouzos, 2005; Wilson & Daly, 2001). By 2004-2006, cohabiting women resembled cohabiting men, with a pattern of risk that resembled a normal distribution with a peak at 45-54 years. Cohabiting women aged 65 and above were the only age group that did not show a substantial reduction in risk. This result needs to be regarded with caution due to the small number of homicides in this age category. These shifts in age-specific homicide rates for cohabiting victims suggest that the dynamic of risk for

cohabiting couples has changed. That these age-specific patterns in 2004-2006 do not resemble those of married victims show that whatever change occurred, cohabiting victims remain distinct from married victims.

An analysis of the Sex Ratios of Killing showed that for both cohabiting and married victims, there was a trend away from equality, such that each year, there were fewer male victims per 100 female victims. This trend supports the argument that public interventions such as counselling, shelters, and legal policies, have more impact on male victimisation than on female victimisation (Browne & Williams, 1989; Dugan, et al., 1999).

Cohabiting couples generally had higher SROK ratios than married couples, a pattern that has been found in Canada (Wilson, et al., 1993). This may be because in the past cohabiting couples were less likely, or less able, to access domestic violence services such as shelters and counselling. At the policy level, anti-violence legislation may not have applied, or been applied, as effectively to cohabiting couples. Police responses to domestic violence incidents in cohabiting households may also have differed. Unfortunately, evaluation of these possibilities is beyond the scope of the current study. More research is needed to determine whether violence prevention strategies are equally effective for cohabiting and married couples. Although cohabiting couples generally had a higher SROK ratio than married couples, they also showed a steeper decline in SROK ratios. This may reflect that over time, violence prevention strategies became more effective for cohabiting couples. It could also be that the dynamic of risk has been changing, so that cohabiting relationships are coming to resemble married relationships.

The differential decline in homicide rates, leading to an equalization of risk for married and cohabiting couples, can have two root causes. Either the demographic of people who choose to cohabit has changed, or the union profile – the meaning of cohabitation – has changed. I will examine each of these factors in turn.

Demographic Profile

Factors such as youth, low income, low education, and unemployment, have been associated with crime victimisation and perpetration (Dobrin, et al., 2005; Faergemann, et al., 2009; Jones-Webb & Wall, 2008; Stickley & Carlson, 2010). These factors have also been associated with cohabitation (Lichter, et al., 2010; Prokos & Keene, 2010; Stets, 1991). Examining the demographic profiles of cohabiting and married populations allows us to examine the extent to which these factors covary with homicide rates. If these factors are important in influencing the differential homicide risk of married and cohabiting couples, we would expect there to be large differences in the demographic profiles in 1990, and that these differences would have reduced substantially by 2005. All confidence intervals were calculated using generalised standard errors, as outlined in the U.S. Census Bureau's Public Use Microdata Sample technical documentation (2005).

Age Distribution

As expected, the cohabiting population in 1990 displayed a heavy youth bias, with 60.3% of all cohabiting couples under the age of 34. In comparison, only 27.6% of married couples were under 34 years of age during the same period (see Figure 9). The distribution in 2005 shows a weakening of this cohabiting youth bias. However, this is

balanced with a similar decline of young married couples. So whereas both union types showed a shift towards the older age groups, the differences between union types were largely maintained (see Figure 10).

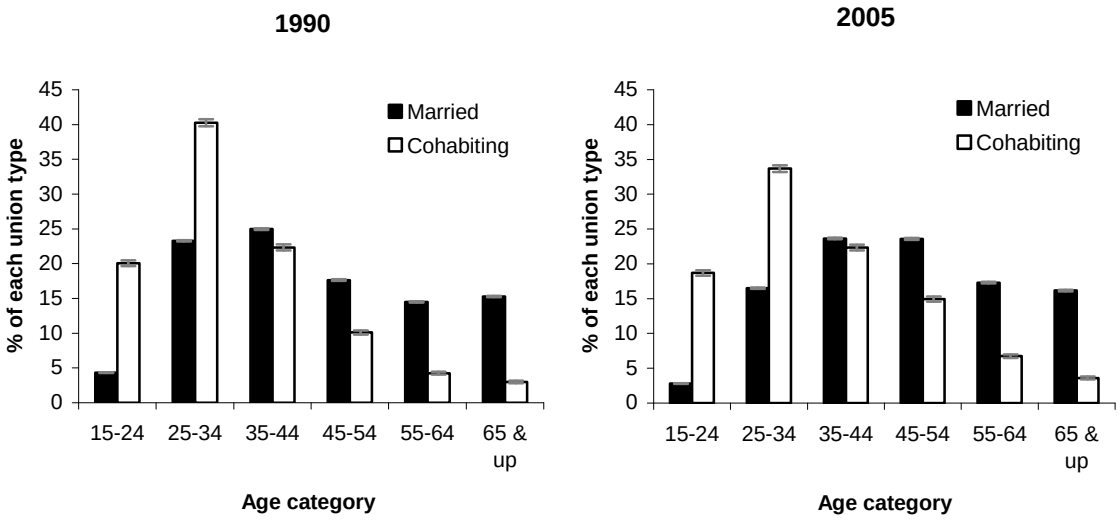

Figure 9. Population by age category and union type, U.S., 1990 and 2005. Error bars represent 95% confidence intervals.

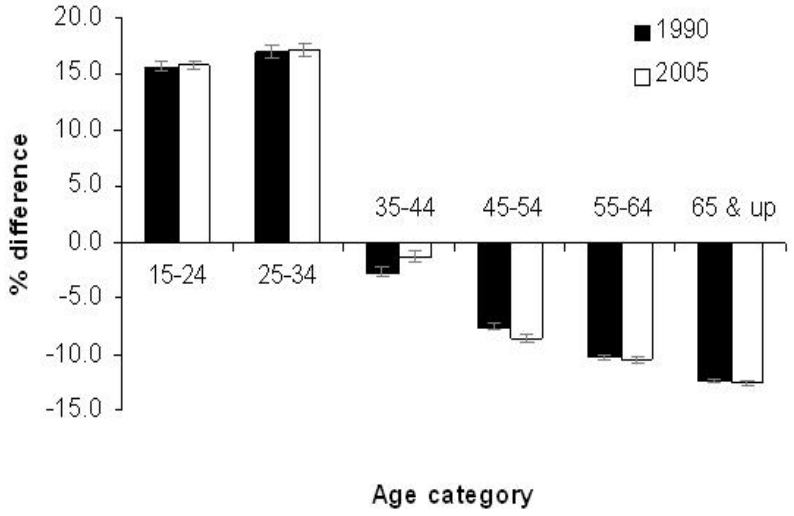

Figure 10. Differences in % of each union type in each age group, U.S., 1990 and 2005. Positive values indicate that the cohabiting population has a higher proportion of persons in that age category.

Couple Income

In both years, married couples had a higher median income than cohabiting couples. Furthermore, this difference in median income increased from $9,106 in 1990 to $13,495 in 2005. To determine whether these differences in income were solely driven by certain age groups, I calculated median incomes per age category (see Figure 11). The trend of married couples earning more is clear, with the married advantage strongest in the middle age groups. Between 1990 and 2005 (see Figure 12), the difference in median income increased for all age groups except for those aged 55 and above.

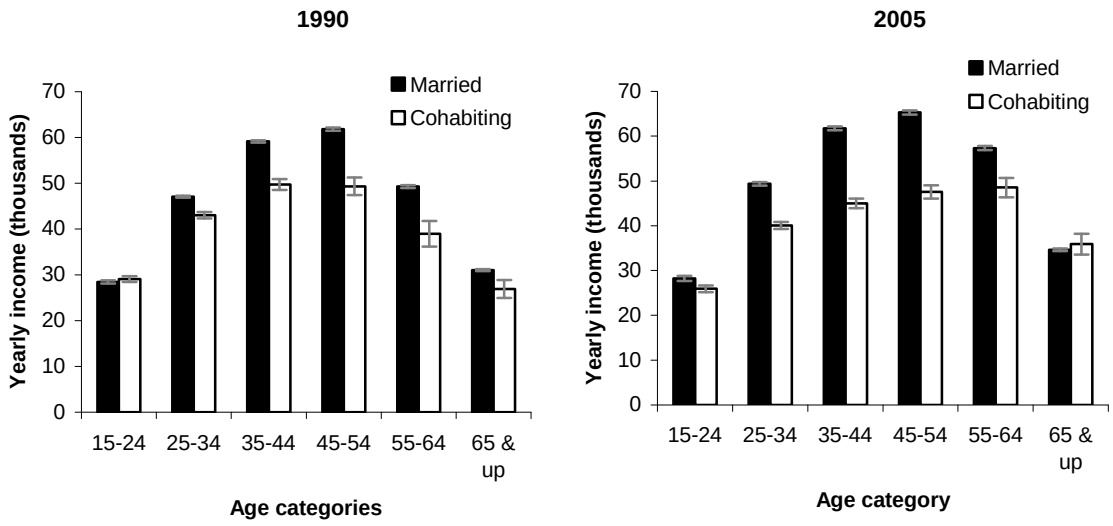

Figure 11. Median yearly couple income, U.S., 1990 and 2005.

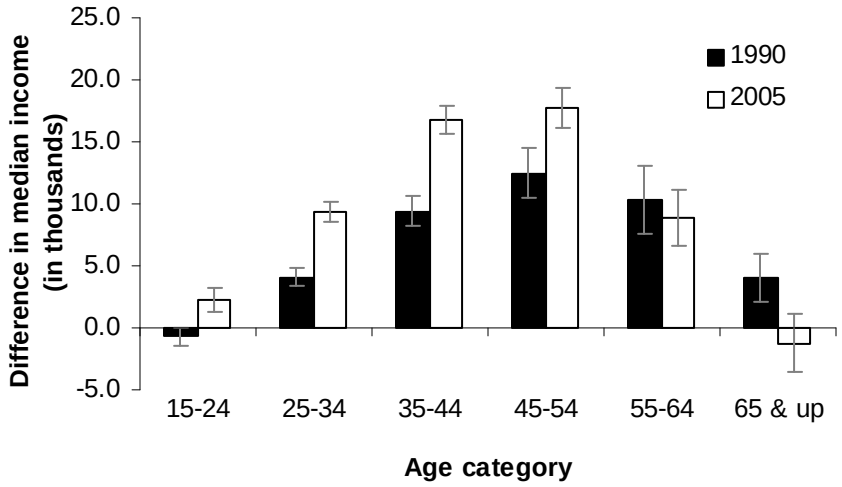

Figure 12. Differences in median yearly couple income, U.S., 1990 and 2005. Positive values indicate married couples earned more than cohabiting couples.

Employment Status

For both union types, 2005 saw a slight decrease in the percentage of persons employed, and a slight increase in persons not in the labour force (i.e., in school, full-time housework, or unable to work). This may reflect the growing proportion of people completing university degrees. Overall there was very little change in employment

status between 1990 and 2005 (see Figure 13). In both years, a higher percentage of the cohabiting population was employed, compared to the married population. For those not in paid employment, there was a higher percentage of unemployed cohabiting persons than unemployed married persons. In comparison, married persons were more likely than cohabiting persons to be listed as not in the labour force. Further analysis showed that this effect was driven by wives, who in all age categories were more likely than cohabiting women to be out of the labour force (see Figure 14). The differences between wives and cohabiting women were greatest in those aged under 65 years, suggesting that wives were more likely than cohabiting women to fill a traditional homemaker role. This pattern was consistent between 1990 and 2005. Differences in the percentage of husbands and cohabiting men out of the labour force were modest, and consistent between years (see Figure 14).

Figure 13. Employment status, by union type, U.S., 1990 and 2005. Confidence intervals are not shown because the largest 95% confidence interval was 0.8%.

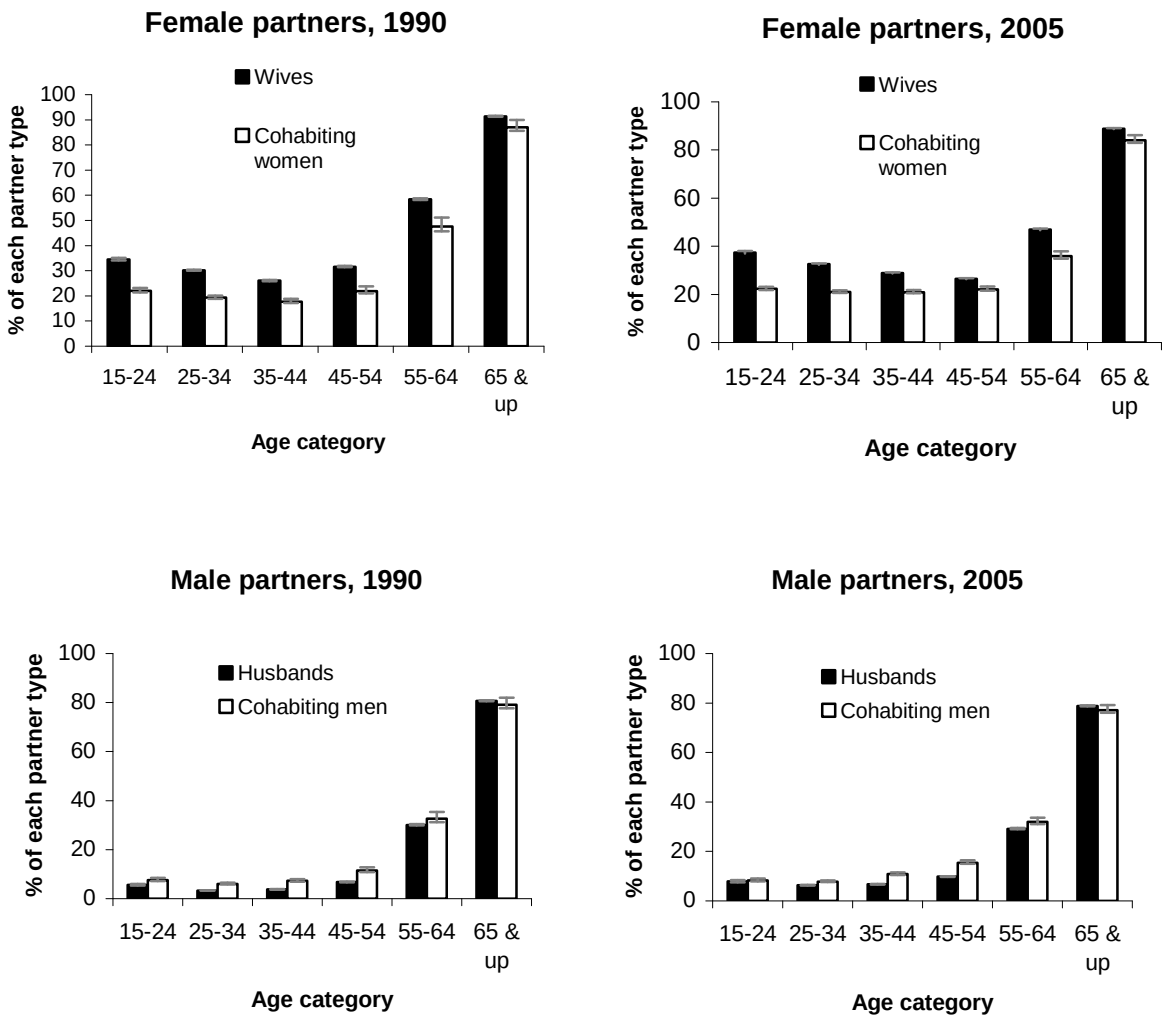

Figure 14. Male and female partners listed as out of the labour force, by age and union type, U.S., 1990 and 2005.

Education

In 1990, 21% of the married population held a Bachelors degree or higher (a Masters or Doctorate degree), compared to 15% of the cohabiting population. Although the level of education increased across the board in 2005, the disparity was maintained, with 30% of the married population holding at least a Bachelors degree, compared to 20% of the cohabiting population. Figure 15 shows that these differences were not merely due to the fact that the cohabiting population was younger, as disparities existed in all ages 25 years and above. These disparities were enhanced in 2005, as the married population made greater gains in every age category except in those aged 65 years and above.

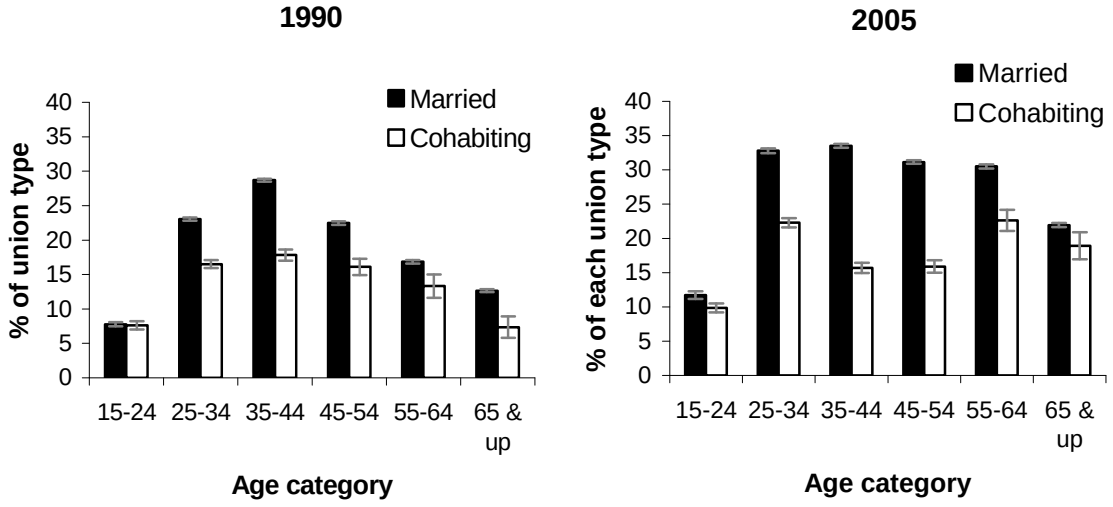

Figure 15. Percentage of married and cohabiting populations holding a Bachelor degree or higher, U.S., 1990 and 2005.

Discussion of Demographic Profile

It was expected that differences between cohabiting and married populations would have reduced between 1990 and 2005. However, this was not the case. In 2005, the cohabiting population remained remarkably younger, less educated, and poorer than the married population. There was also little change in patterns of employment. As cohabiting and married couples remain demographically distinct, and yet their differential homicide risk has all but disappeared, one can reasonably assume that these demographic variables are not the main force driving homicide trajectories.

One could argue that although differences in education levels remained in 2005, the improvements seen in the cohabiting population may have been sufficient to influence the decrease in homicide rate in cohabiting couples. However, the age groups for whom there was no change in education level between 1990 and 2005 still displayed large drops in homicide rates. This suggests that some other factor, or combination of factors, was responsible for the decrease in homicide rates.

Union Profile

While researchers consider cohabiting and married unions to be qualitatively different, it's possible that for some people, the meaning of cohabitation has changed. Whereas cohabiting with a partner may have traditionally been perceived as a casual arrangement, it may today be considered a relationship that is akin to marriage in its commitment and seriousness. Creating a union profile is a way of operationalising this idea of the 'meaning' of a relationship. Here union profile refers to the characteristics of a relationship, such as the level of commitment, relationship satisfaction, frequency of

arguments, financial arrangements, and the presence of children. Unfortunately, these are largely beyond the scope of the Census and American Community Survey data. I have been able to evaluate the presence of children within relationships, income equality within couples, and from the homicide data, methods of killing.

Presence of Children

Cohabiting unions are more often childless than married unions, and when children are present, they are often stepchildren (Bumpass & Lu, 2000; Wilson & Daly, 2001). Both childlessness and the presence of stepchildren have been linked to the higher level of conflict in cohabiting unions (Wilson & Daly, 2001). Unfortunately I cannot compare the prevalence of stepchildren in cohabiting and married unions, due to a lack of detail in the Census and American Community Survey questionnaires. Nor can I compare the number of children in each union type. There is sufficient detail, however, to ascertain the presence or absence of children in each union. As can be seen in Figure 16, between 1990 and 2005 there was no change in the percentage of cohabiting couples with children present. However, it is impossible to tell what proportion of these 'children present' unions included stepchildren, as that proportion may have changed between years. For those in married unions, the proportion of couples with children present decreased slightly, from 58.8% in 1990 to 54.7% in 2005.

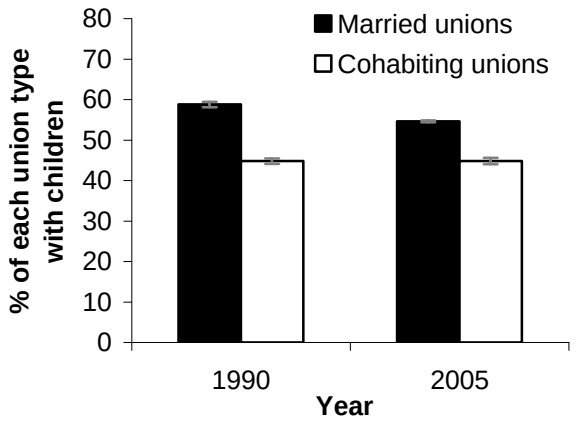

Figure 16. The presence of children in married and cohabiting unions, U.S., 1990 and 2005. Error bars represent 95% confidence intervals.

Income Equality Within Couples

Unfortunately, neither the Census nor the American Community Survey asks respondents about financial arrangements such as shared bank accounts. Previous research has shown that cohabiting and married couples have distinct styles of managing their finances. Cohabiting couples are more likely to maintain separate bank accounts, an arrangement that has been shown to undermine relationship satisfaction (Addo & Sassler, 2010). By comparing what each female partner earns with her spouse's income, I was able to assess income equality within relationships. This is an indirect measure of financial arrangements. All couples were included in the analysis, regardless of whether both partners were in paid employment or not. In both married and cohabiting couples, and in both years, the male partner earned more (seen in the positive difference scores in median income in Figure 17). In both years, cohabiting males earned just over $6,000 more than their partners. Husbands, in contrast, earned over $19,000 more than their wives in 1990, and almost $16,000 more in 2005.

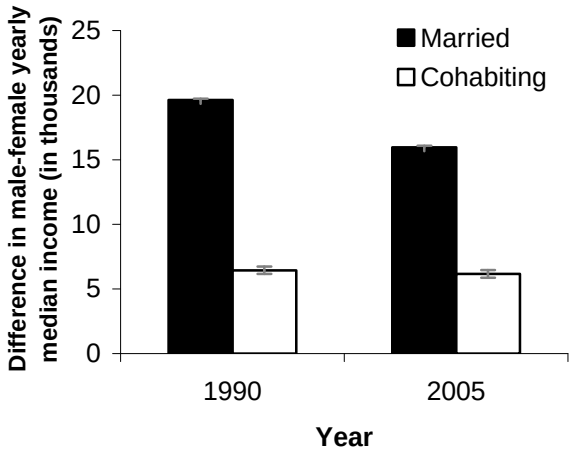

Figure 17. Within-couple income inequality (male minus female income), in married and cohabiting couples, U.S., 1990 and 2005. Error bars represent 95% confidence intervals.

Methods of Killing

The homicide files can provide insight into whether cohabiting couples are coming to resemble married couples. Compared to marriage, cohabitation has been associated with lower levels of commitment, increased infidelity, and a high dissolution rate (Bumpass & Sweet, 1989; Zheng & Balakrishnan, 1992). One explanation of the differential homicide risk is that these factors foster sexual jealousy, which leads to increased violence as cohabiting male partners struggle to control their mates (Wilson, Johnson, & Daly, 1995). Evidence of this tension and the resulting struggle for control can be found in the homicide files, by evaluating the weapons perpetrators use to kill their partners. One could expect that low commitment and increased likelihood of infidelity in cohabiting couples, and a higher base-level of non-lethal violence, may be reflected in more brutal hands-on violence in cohabiting homicides. Mize, Shackelford, and Shackelford (2009) used the Supplementary Homicide Reports to examine methods

of killing in intimate partner homicides in the United States between 1976 and 2001. They found that cohabiting women were more likely than wives to be beaten to death, which suggests there is a qualitative difference between cohabiting and married unions. They did not examine whether there was a change in this pattern over time, nor did they evaluate killing methods for male victims in a way that eliminates the effect of physical differences between sexes, as beating requires substantial physical strength. To address these limitations, I identified homicide cases where the victim was killed in a hands-on, "bloody" method. In addition to personal weapons (beating), this category includes assault with knives and blunt objects.

Female victims.

A chi-square analysis showed that over the years 1990 to 2005, a greater proportion of cohabiting women were killed by bloody methods (32.3%), than were married women (26%), $\chi^2(1, N = 9828) = 18.91$, $p < 001$. To determine whether there was a trend in the percentages of cohabiting women being killed by bloody methods, I performed a regression analysis. Despite a high level of fluctuation year to year (see Figure 18), there was a significant downward trend over time, $\beta = -.51$, $t(14) = 2.25$, $p = .04$.

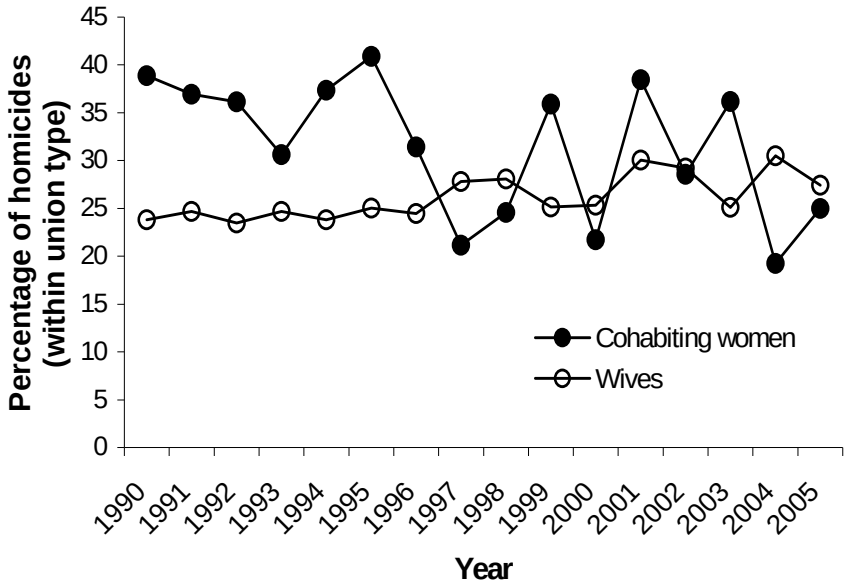

Figure 18. Percentage of female victims killed each year by bloody methods, by union type, U.S., 1990-2005.

Male victims.

The pattern of methods for male victims was similar to female victims, as a higher proportion of cohabiting men were killed by bloody methods (and the vast majority of these were by knives; see Figure 19). However, the difference between union types was much more striking, as over half of cohabiting men (54.2%) were killed by bloody methods, compared to 27.2% of married men. A chi-square analysis showed these proportions to be significantly different, $\chi^2(1, N = 3255) = 167.07, p < 001$. A test of the linear relationship between year and percentage of bloody homicides was unsurprisingly non significant ($p = .70$).

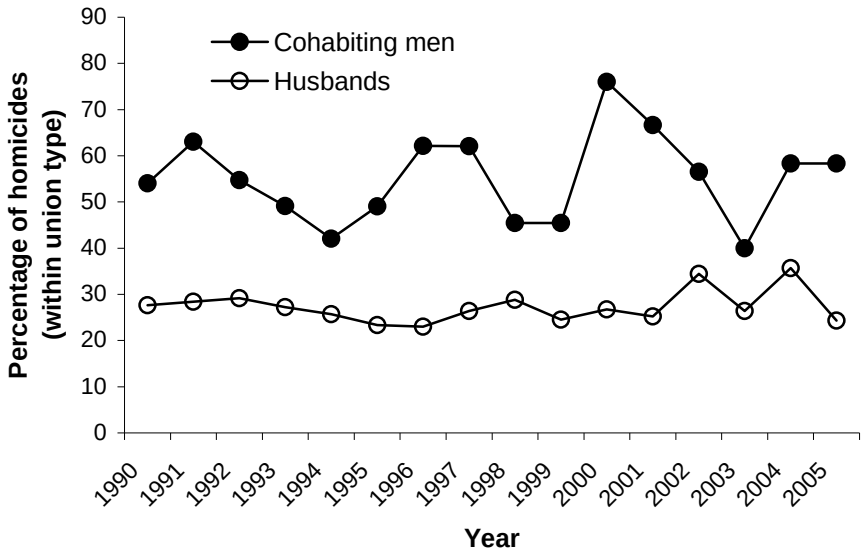

Figure 19. Percentage of male victims killed each year by bloody methods, by union type, U.S., 1990-2005.

Discussion of Union Profile

Consistent with previous research, cohabiting households in the U.S. in both 1990 and 2005 were less likely than married households to have children present (Bumpass & Lu, 2000). However, contrary to expectation, cohabiting households were no more likely to have children present in 2005 than in 1990. This suggests that on average, cohabiting unions in 2005 were not notably different from cohabiting unions in 1990, at least in terms of the presence of children. It therefore seems unlikely that changes in whether or not unions included children drove the changes in homicide rates.

Unfortunately, limitations of the data prevented an examination of whether the likelihood of stepchildren being present in cohabiting households changed during the 1990-2005 period. Other research does not answer this question directly, but suggests that in the U.S., stepchildren remain more common in cohabiting than in married households

(Carlson & Furstenberg, 2006). The pattern of longitudinal change in the U.S. is less clear, although data from Canada suggest that stepchildren are becoming slightly less common in cohabiting unions. In 1995, 48% of cohabiting unions with children included stepchildren. In 2001, this had dropped to 43%. In comparison, the percentage of married unions with children that included stepchildren rose from 6% in 1995 to 7% in 2001 (Statistics Canada, 2004).

Analyses of income equality within couples revealed little change between 1990 and 2005. One would expect that as homicide rates for cohabiting and married couples converged, financial arrangements would also become more similar. This was not the case, as in both years, cohabiting couples were consistently more homogenous than married couples in their earnings. While not direct evidence, this pattern is consistent with the idea that cohabiting couples are more likely to maintain separate finances (Addo & Sassler, 2010). The declining homicide rates appear to have occurred in spite of these persistent differences in financial arrangements.

Analysis of methods of killing revealed that both cohabiting women and men were more likely to be killed by bloody methods than were their married counterparts. If the meaning of cohabitation was changing, one would expect these differences in killing method to decline over time. There was partial support of this hypothesis, at least for female cohabitors. This downward trend in the proportion of cohabiting women killed by bloody methods should be regarded with caution due to the high level of fluctuation year-to-year. If the decline is reliable, it could be related to the general decline in non-lethal male-on-female intimate partner violence (Catalano, 2007). Previous incidents of non-

lethal violence between the perpetrator and victim have repeatedly been identified as a risk factor of intimate partner homicide (Campbell, et al., 2003; Dobash, Dobash, Cavanagh, & Lewis, 2004; Elisha, Idisis, Timor, & Addad, 2010), although it is unclear whether previous violence increases risk of death by bloody methods, compared to other killing methods. If this is the case, it could be that a smaller proportion of cohabiting women are being killed by bloody methods because fewer women are being subjected to non-lethal assault. An equivalent decline may not have been observed in married women because they experience very low rates of non-lethal violence (Catalano, 2007). Unfortunately these questions are beyond the scope of this study.

The difference between cohabiting and married male victims was more striking, in addition to no discernible change over time. This suggests that cohabiting unions are not becoming more like marriages, at least from the perspective of male victims. Why these differences in killing method are larger for male victims than for female victims is an open question. If more intense sexual jealousy in cohabiting unions leads to more intense male on female non-lethal violence, it could be that female partners more often resort to impulsive self-defensive violence. In this context it would make sense that impulsive defense would involve weapons easily-to-hand, such as knives. Alternatively, it could be an issue of accessibility. Married households may more often contain firearms, which are the most common weapon used by both husbands and wives (66% and 67.2% of cases, respectively). These are questions for future research.

Canada

To examine whether the observed equalisation of married-cohabitating homicide risk is peculiar to the Untied States, I examined homicide patterns in Canada. As in the U.S., there has been a general decline in the total homicide rate for both male (see Figure 20) and female victims (see Figure 21). Unlike in the United States, the percentage of rate change was not equal for male and female victims in Canada, with female victims experiencing twice the amount of decline as male victims (see Table 6). Despite these declines, Canadian males, like American males, were consistently victimised at a higher rate than women.

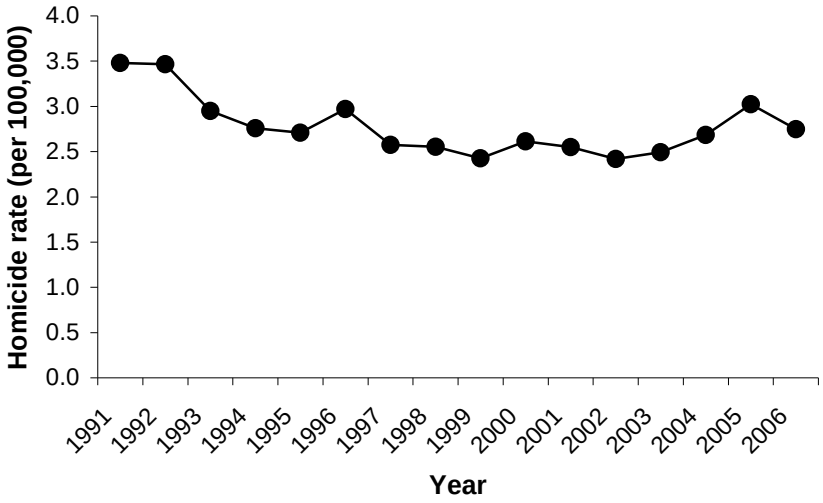

Figure 20. Homicide rates of male victims, all victim-offender relationship types, Canada, 1991-2006.

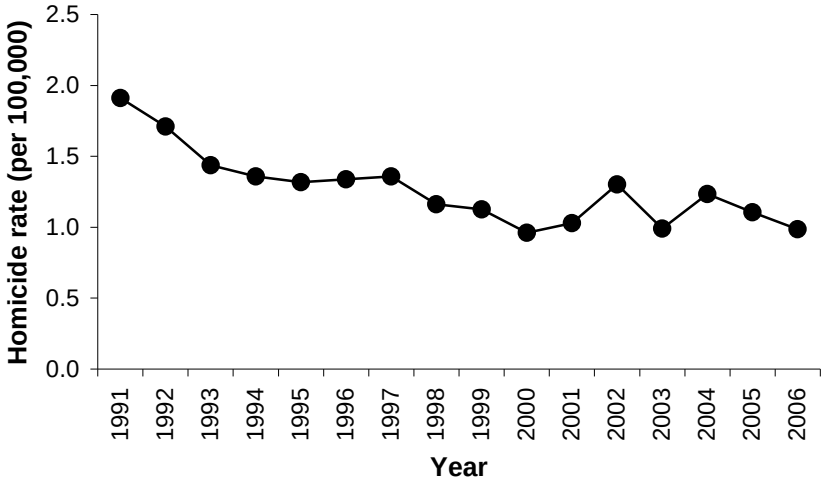

Figure 21. Homicide rates of female victims, all victim-offender relationship types, Canada, 1991-2006.

Table 6.
General homicide rates by sex of victim, Canada, 1991 and 2006.

	Homicide rate (per 100,000)		% rate
Victim type	1991	2006	change
Male	3.48	2.75	-21
Female	1.91	0.99	-48

Population and Homicide Data

Union-specific homicide rates were calculated in a similar fashion as in the United States data. Estimates of the married and cohabiting populations were calculated using the Canadian quinquennial Censuses from 1991, 1996, 2001, and 2006. In the United States estimates, care was taken to exclude same-sex cohabiting couples from population estimates. Unfortunately this was not possible in the Canadian data, as same-sex couples could not be identified. Population figures between the Census years were

estimated using linear interpolation in SPSS 19. Homicide incidents were drawn from the Canadian Homicide Survey (Statistics Canada, 2011). Unfortunately the Canadian homicide information that is released to the public is much less detailed than the United State's FBI data. Rather than providing incident level information, the Canadian Homicide Survey only provides the number of homicides by victim-offender relationship.

Results

Homicide Trajectories

As seen in Figure 22, homicide trajectories in Canada are similar to those in the United States. However, the decline for husband victims was not as pronounced, and wife victims did not experience a significant change between 1991 and 2006 (see Table 7). Cohabiting men and women did experience a substantial decline (see Table 7), though less striking than in the United States.

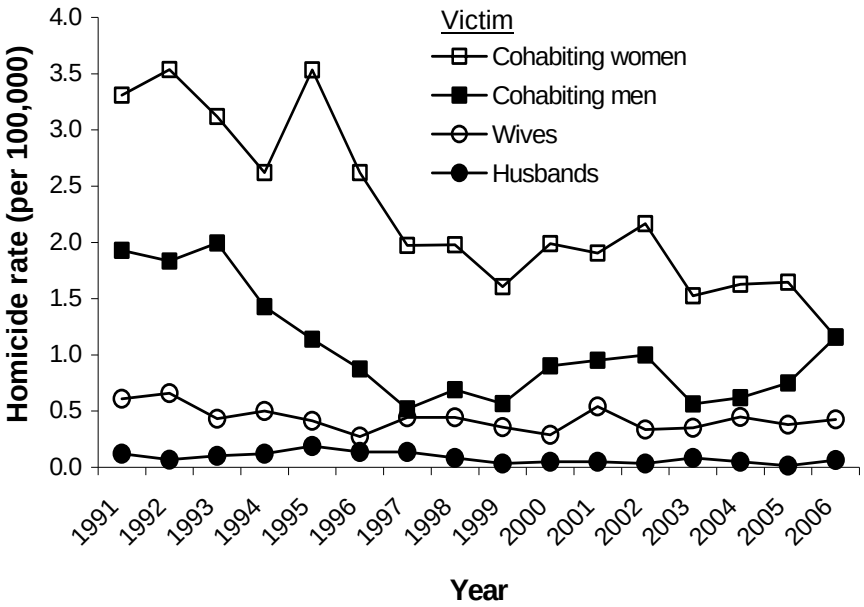

Figure 22. Homicide rates by relationship of victim to perpetrator, Canada, 1991-1996.

Table 7.
Homicide trajectories by relationship of victim to perpetrator, Canada, 1991-2006.

Victim type	1991		2006		Exponential slope	
	Rate per 100,000	Union risk ratio	Rate per 100,000	Union risk ratio	Unstandardised ß (p value)	% rate change
Cohabiting women	3.31	5.4	1.16	2.7	-.06 (<.001)	-65
Wives	0.61		0.43		-.02 (ns)	-30
Cohabiting men	1.93	16.1	1.16	16.6	-.06 (.01)	-40
Husbands	0.12		0.07		-.09 (.008)	-42

By looking at union risk ratios, we can see that cohabiting women and married women showed a slight trend towards equality, although cohabiting women remained at elevated risk in 2006 (see Figure 23), unlike in the United States. The union risk ratio of cohabiting men to married men displayed substantial fluctuation (see Figure 24), likely due in part to the small homicide counts in some years. Cohabiting men were at higher risk than married men for the entire study period, reaching a peak of 45 times the risk of married men in 2005.

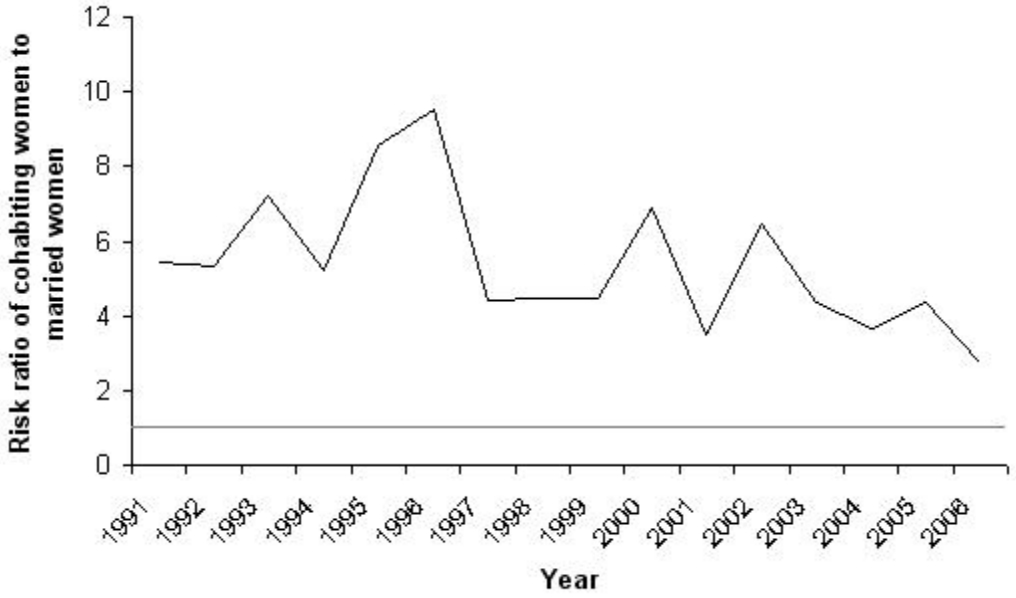

Figure 23. Risk ratio of cohabiting women to married women, Canada, 1991-2006.

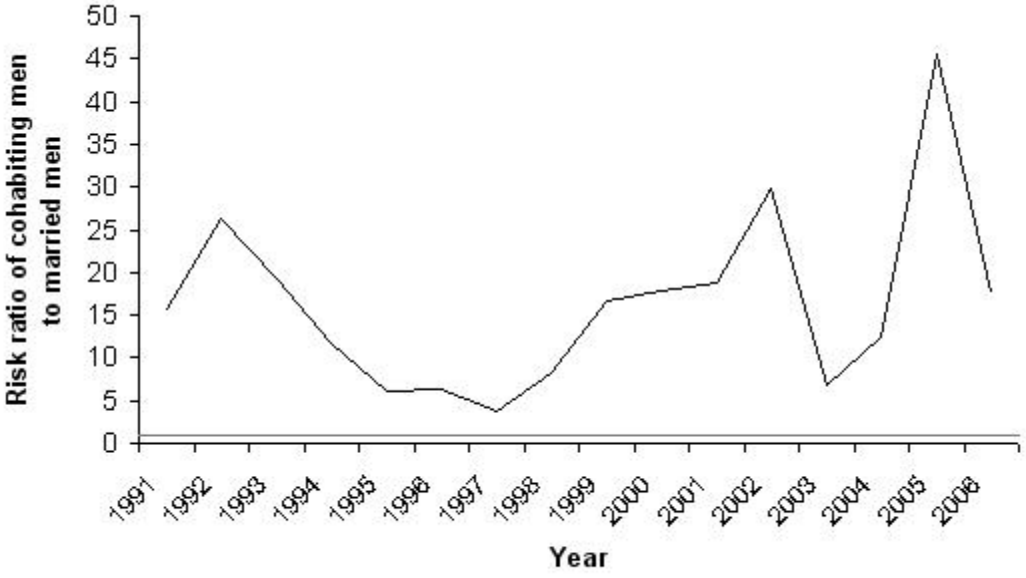

Figure 24. Risk ratio of cohabiting men to married men, Canada, 1991-2006.

Sex Ratios of Killing

Regression analyses of SROK values (see Table 8) show that although there was substantial fluctuation year to year, there was no appreciable trend in either cohabiting (β = .13, $t(14) = .50$, $p = .63$) or married victims (β = -.44, $t(14) = 1.84$, $p = .09$). This contrasts with the United States data where there was a trend away from equality in both cohabiting and married victims.

Married couples had a lower average SROK value than cohabiting couples (20 vs. 47), indicating that there was a greater disparity between the number of married male and female victims than between the number of cohabiting male and female victims. A t-test showed this to be a statistically significant difference, $t(30) = 4.86$, $p < .001$. This echoes the United States data, in which cohabiting couples tended to have higher SROK values than married couples.

Table 8.
Number of homicide victims by union type and sex of victim, and spousal sex ratios of killing, Canada, 1991-2006.

	Cohabiting couples			Married couples		
Year	Male victims	Female victims	SROK	Male victims	Female victims	SROK
1991	14	24	58	7	35	20
1992	14	27	52	4	38	11
1993	16	25	64	6	25	24
1994	12	22	55	7	29	24
1995	10	31	32	11	24	46
1996	8	24	33	8	16	50
1997	5	19	26	8	26	31
1998	7	20	35	5	26	19
1999	6	17	35	2	21	10
2000	10	22	45	3	17	18
2001	11	22	50	3	32	9
2002	12	26	46	2	20	10
2003	7	19	37	5	21	24
2004	8	21	38	3	27	11
2005	10	22	45	1	23	4
2006	16	16	100	4	26	15

Demographic Profile

Like the Canadian homicide data, the Canadian Census lacks the detail of its Untied States counterpart. However, examining some key demographic variables provides insight into whether the differences found between cohabiting and married couples in the United States are paralleled in Canada. All confidence intervals were calculated using the bootstrap method in SPSS 19.

Age Distribution

As can be seen in Figure 25, the age distribution of cohabiting couples was skewed towards the younger age groups in both 1991 and 2006. This 'young' bias diminished somewhat in 2006, but married couples also showed a shift towards the older age categories. This pattern is similar to that found in the U.S. between 1990 and 2005.

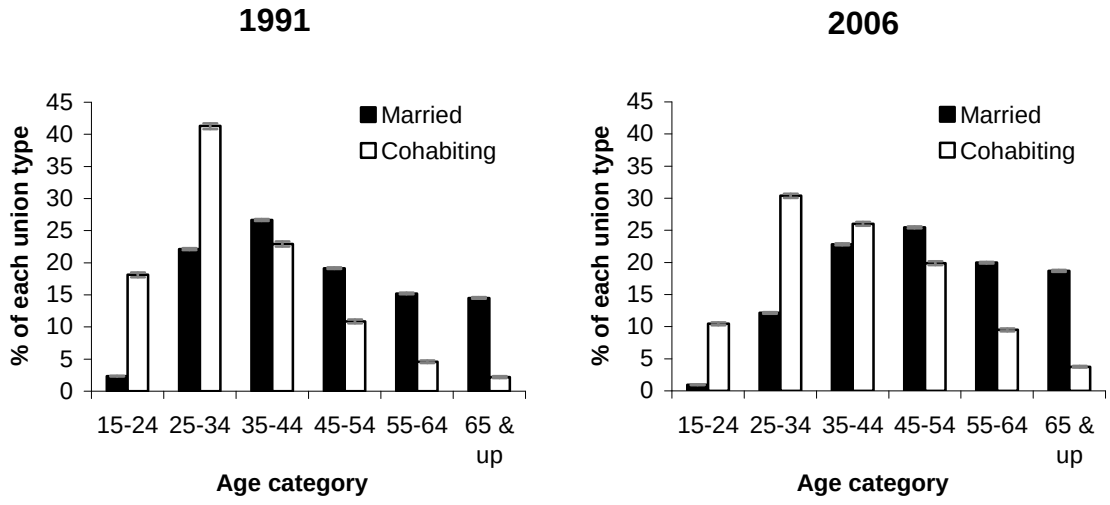

Figure 25. Age distributions of married and cohabiting populations, Canada, 1991 and 2006.

Employment Status

These employment status figures compare 1991 with 2001, as the relevant Census item was not included in 2006. Patterns were similar to those seen in the United States data. A higher percentage of cohabiting persons were employed. Cohabiting persons were also slightly more likely than married persons to be unemployed. This seemingly contradictory pattern rests on the fact that when married persons were not in paid employment, they tended to be out of the labour force altogether (see Figure 26). This effect was driven by wives under the age of 64, who in every age category were more likely than cohabiting women to be out of the labour force (see Figure 27). This was consistent between 1991 and 2001.

Figure 26. Employment status by union type, Canada, 1991 and 2001. Error bars represent 95% confidence intervals.

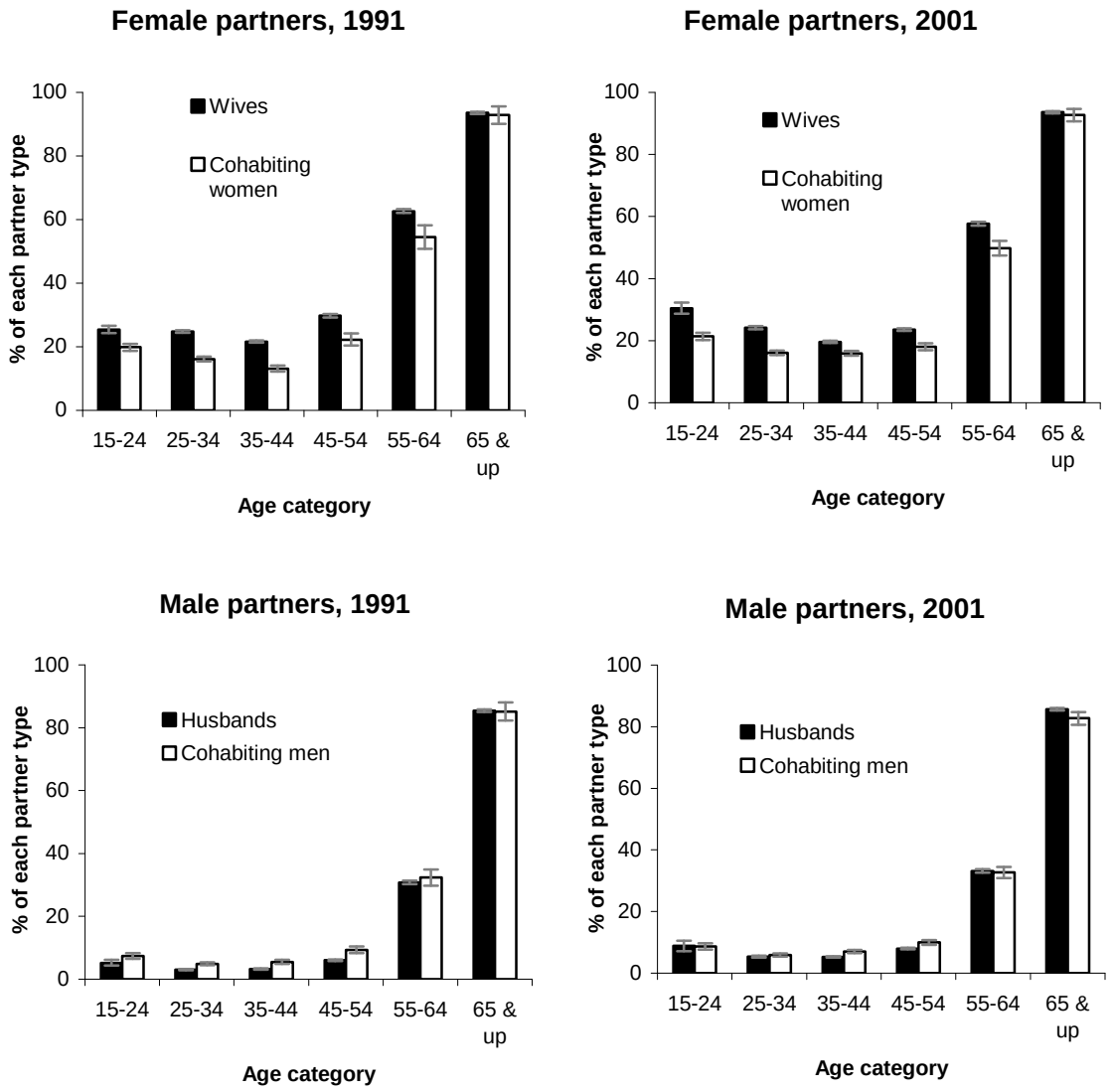

Figure 27. Male and female partners listed as out of the labour force, by age and union type, Canada, 1991 and 2001. Error bars represent 95% confidence intervals.

Income

Married and cohabiting couples were remarkably similar in terms of income (see Figure 28), in contrast with the U.S. data. Because of limitations in being able to identify couple pairs in the Canadian Census files, Figure 28 represents the annual median incomes at the *person* level, rather than at the couple level (as in the United States data).

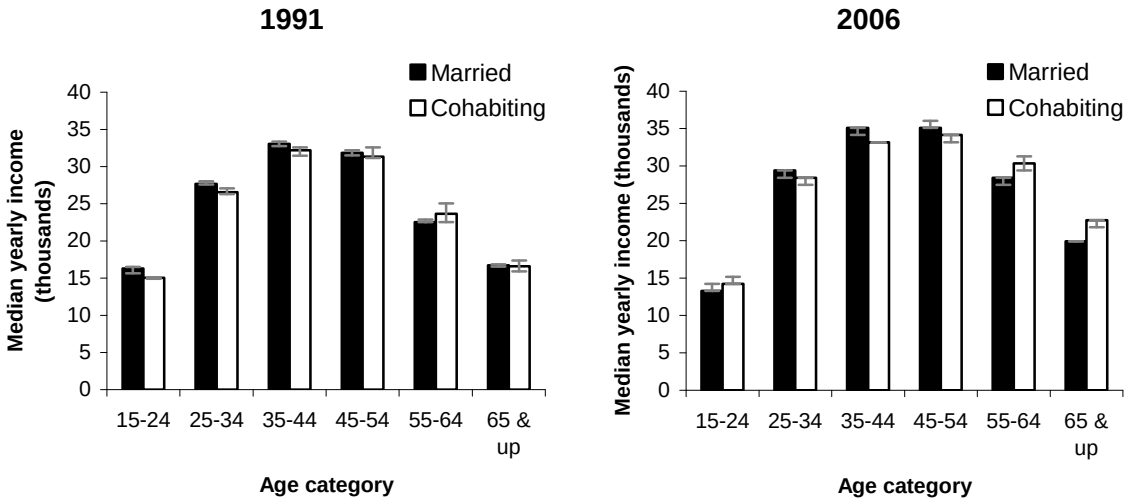

Figure 28. Yearly income of married and cohabiting persons, Canada, 1991 and 2006. Error bars represent 95% confidence intervals.

Discussion of Canadian Data

There are parallels between the Canadian and United States homicide data: strong declines in cohabiting homicide risk, yet stronger declines in married male risk, and a general convergence of cohabiting-married risk, at least for women. However, the pattern is not as strong in Canada, particularly for cohabiting men.

There are also parallels between Canada and the United States in terms of the demographic profile of cohabiting couples. In both countries, cohabiting couples tend to

be younger, with this bias having diminished somewhat by 2005/2006. Because the percentage of young married couples has also dropped, this lessening of the youth bias may suggest that people are waiting longer before embarking on their first serious romantic relationship. Patterns of employment are also similar in the two countries, with a higher percentage of wives reporting that they are not in the labour force. This suggests that marriages remain more conventional, at least in terms of financial arrangements. Analysis of union profiles was restricted by limitations of the Census data, so it was not possible to evaluate the presence of children or stepchildren, or within-couple income equality.

As for the implications for homicide rates, it is difficult to draw any firm conclusions. What is clear is that there are substantial differences between cohabiting and married couples, and any reduction in homicide rate has occurred in spite of these demographic differences. That cohabiting and married couples are actually more homogenous in Canada (in terms of yearly income), and yet they still retain disproportionate risk, further suggests that demographic variables are not the main factor influencing homicide risk.

General Discussion

Although rates of intimate partner homicide have declined in recent years, research has shown that some people are at much higher risk of victimisation than others. The current study focused on trends in the homicide rates of cohabiting and married victims, in order to determine whether all groups experienced an equal amount of decline. It was predicted that the homicide rates of cohabiting victims would have declined less

than married victims, due to the complex set of risk factors associated with cohabitation, and the rapid increase in the size of the cohabiting population.

Contrary to expectation, cohabiting men and women experienced a steep and significant decline in homicide risk. This was far beyond the decline of homicide rates in general, so that by 2005, cohabiting couples were no longer at higher risk than married couples. These results are surprising, as cohabiting couples have previously been victimised at a much higher rate than married couples. This study suggests that being in a cohabiting union no longer increases the risk of intimate partner homicide.

The pattern in homicide rates of married victims showed that both husbands and wives experienced a substantial amount of decline, although the homicide rate of husbands fell more sharply than that of wives. Even though wives experienced a considerable decline in homicide rate, the reduction was less than the decline in the homicide rate in the population at large. This is potentially a cause for concern, as it may suggest that anti-violence strategies are less effective at preventing the victimisation of wives compared to other victims.

Analysis of age-specific homicide rates showed that the changes in homicide rates were not simply driven by particular age groups, or by fluctuations in the age distribution of each union type. Although homicide rates for cohabiting and married victims converged, the age-specific analysis showed that cohabiting and married victims remained distinct in terms of age risk. Young husbands and wives were most at risk, while cohabiting men and women were most at risk in middle age. The reason for this is

unclear, but points to qualitative differences in the dynamics of cohabiting and married unions.

Analysis of sex ratios of killing showed a general trend away from equality for both union types, with fewer male victims per 100 female victims each year. This pattern likely reflects the differential effectiveness of anti-violence policies for men and women. Male-perpetrated violence appears to be less responsive to existing policies than female-perpetrated violence.

These patterns in homicide rates were partially replicated using Canadian homicide data. In both countries there were strong declines in cohabiting homicide risk, and a general convergence of cohabiting-married risk, at least for women. But the patterns were not as strong in Canada as in the United States, particularly for cohabiting men. The United States is not always representative of the Western world, particularly in regard to violence (e.g., Wilson & Daly, 1992), so it remains to be seen whether the equalisation of cohabiting-married homicide risk is a wide-spread Western phenomenon, or peculiar to the United States.

It was hypothesised that the equalisation of cohabiting-married homicide risk was due to changes in either the demographic or union profiles of cohabiting couples. Contrary to expectation, over time cohabiting and married populations remained distinct in both these areas. In 2005, the cohabiting population remained younger, less educated, and poorer than the married population. Cohabiting unions also remained less conventional, with male and female cohabiting partners more likely to have similar incomes, cohabiting women less likely than wives to be out of the labour force, and

cohabiting households less likely to have children present. The homicide data supported this picture of a persistent qualitative difference between cohabiting and married unions, as both cohabiting men and women were more likely than husbands and wives to be killed by "bloody" methods such as beating and stabbing. There was a downward trend in the percentage of cohabiting women killed by bloody methods, but this was not echoed in cohabiting male victims. This trend could be considered evidence of a change in the cohabiting union profile, although it should be regarded with caution due to the high level of fluctuation year-to-year. Overall, the data suggest that cohabiting and married unions remain distinct in terms of demographic and union characteristics.

The demographic patterns found in the United States were partially echoed in Canada. Cohabiting couples in Canada were younger than married couples, and displayed a pattern of employment status similar to American cohabitors. Cohabiting and married populations also remained distinct across time, as in the United States. One point of difference was that the large discrepancies in yearly incomes found in the United States were not observed in Canada. So while the patterns in Canada differed slightly from those in the United States, the Canadian demographic analyses are informative as they suggest that any declines in the Canadian homicide rates were not simply due to demographic factors, as there was little change in these factors over time.

While it appears that there has been negligible change in the union profile of cohabiting couples in both the United States and Canada, limitations of the survey data meant the picture was painted with a very restricted palette. More research is needed to determine whether factors such as the proportion of stepchildren, financial arrangements,

relationship satisfaction, fidelity, and commitment, have changed in cohabiting unions over time. Without this information one cannot confidently judge whether or not cohabiting unions are coming to resemble marriages. Ideally, future research would take into account the diversity of cohabiting unions. Union characteristics would likely differ greatly depending on factors such as the length of the union, motivations for entering the union, and perceptions of what cohabitation means.

This study has shown that in the United States, cohabiting couples are no longer at elevated risk of intimate partner homicide. Furthermore, a similar pattern appears to be emerging in Canada. Whether these striking declines in homicide risk of cohabiting victims are due to undetected changes in the union profile of cohabiting couples or unexamined demographic factors, requires further investigation.

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