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Spouse Abuse Recidivism in the U.S. Army by Gender and Military Status

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Recidivism by spouse abusers was investigated using records of offenders in the U.S. Army Central Registry. Recidivism by gender and military status (active-duty or civilian spouse) was compared over a 70-month period. Between fiscal years 1989–1997, 48,330 offenders were identified in initial and recidivist incidents. Recidivism was analyzed by means of a Cox proportional hazard rate model, controlling for age, race, number of dependents, education, and substance abuse. Two different sets of survival curves were obtained: (a) Men were much more likely than women to have a recurrence and (b) within gender, civilians were more likely to have a recurrence than were active-duty military personnel. At 70 months, 30% of the male civilian offenders and 27% of the male active-duty offenders had committed a subsequent spouse abuse incident compared with 20% of the female civilian offenders and 18% of the female active-duty offenders, controlling for other variables.

Understanding the factors that contribute to recurrent spouse abuse is important to improving treatment and prevention programs. Most studies of spouse abuse have used only men as their participants, and little is known about recidivism by women. In reviewing domestic violence literature, Feldman and Ridley (1995) found that data on the stability and repeated nature of violent incidents are limited, but the evidence indicates that previous violent episodes are a good predictor of future ones. In the first national survey of family violence, Straus, Gelles, and Steinmetz (1980) found that about two thirds of men who commit wife assault once repeat within a year.

In a longitudinal study of persons seen for marital counseling, 51% of those who reported aggression toward their spouse prior to marriage were likely to be aggressive at 18 months postmarriage. If aggression occurred both pre- and postmarriage, the likelihood was 59% that there would be repeated aggression by 30 months of marriage (O'Leary et al., 1989). About one third of the men who reported aggression against their spouse ceased their violent behavior for reasons other than legal system intervention or treatment (Rosenfeld, 1992).

It is commonly believed, although without scientific evidence, that men and active-duty military personnel have a higher rate of spouse abuse offending than do women and civilians. The purpose of this research was to determine if there is a difference in the number of cases and patterns of recidivism of military and civilian men and women who have been identified as spouse abusers in the Army. This question is important to the military in order to design and implement better prevention and treatment programs.

The Army has an extensive Family Advocacy Program (FAP; (Department of the Army, Headquarters, 1995), whose purposes are to prevent, identify, report, investigate, and treat persons involved in spouse abuse incidents. Cases are referred for investigation by the military police (about 45%); medical/dental personnel (about 18%); command (about 15%); and other sources, including self-referrals. As a part of the FAP, the Army Central Registry (ACR) records military status, gender, type of maltreatment, and limited demographic and personal data on the victim and offender on substantiated cases of spouse abuse (McCarroll et al., 1999). A case review committee at each Army medical treatment facility determines that cases are either substantiated or unsubstantiated on the basis of a preponderance of evidence. The Army recognizes spouse abuse as occurring only between married persons.

Method

The participants of this research were active-duty and civilian spouse abuse offenders entered into the ACR between fiscal years 1989 and 1997. There were 49,881 active-duty and civilian offenders whose first substan-

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Table 1
Numbers and Marginal Proportions of First and Second Recurrences for Spouse Abuse

Offender's gender and military status	*n*	First recurrence		Second recurrence	
		n	%	*n*	%
Male and civilian	2,215	413	18.6	82	3.7
Female and civilian	11,425	1,416	12.4	230	2.0
Male and active duty	32,092	5,230	16.3	1,002	3.1
Female and active duty	2,598	263	10.1	45	1.7

tiated incident occurred between October 1, 1988, and September 30, 1997. ACR data were not available for 1,551 people on at least one of the variables of interest; these cases were not included in the analysis. Our final sample consisted of 34,690 active-duty spouse abusers and 13,640 civilian spouse abusers (see Table 1). The Defense Manpower Data Center supplied us with information on whether the identified married active-duty offenders were still in the Army or with the date an offender was lost to follow-up (i.e., died or left the Army). This date was used as the censorship date. Civilian spouses were considered censored on the date their sponsor left the Army.

Data from the ACR were match-merged with the censorship data, allowing us to examine the time pattern of spouse abuse incidents for each offender. The time in months from the initial event to the first recurrence, if applicable, was recorded. If there was a second recurrence, the time in months from the first to the second recurrence was also recorded. In the event that the offender was lost to follow-up, that case was considered censored on the date of departure.

The dependent variable for these analyses was the survival time to the recurrence of spouse abuse incidents. Two observations were created for each participant corresponding to the first two abuse recurrences. Because each participant entered the study at the time of the initial incident, the participant's next incident of abuse was termed the *first recurrence of abuse*. If the participant had another incident of abuse after the first recurrence, it was termed the *second recurrence*. We followed each participant for up to two abuse recurrences within the study period. In addition to the offender's gender and military status (active duty or civilian), each observation contained the following variables: survival status (censored or recurrent incident), the event number (first or second recurrence), the time in months between incidents, number of dependents, age, race, substance abuse involvement in the incident, and level of education.

Age was derived by subtracting the participant's birth date from the date of the incident. We measured race using two dichotomous variables, White/non-White and Black/non-Black, with other ethnic backgrounds serving as a reference group. To determine the relationship of substance abuse to spouse abuse recidivism, we created two new dichotomous variables: alcohol and/or drug involvement and no alcohol and/or drug involvement. Both of these variables were computed in reference to unknown substance involvement and missing values. The percentage of incidents during this period of time in which substance involvement was unknown for both spouse abuse offenders and victims was approximately 20% (McCarroll et al., 1999). Missing values were less than 3%. Thus, because of the relatively high percentage of unknowns, we had to take participants with unknown substance involvement into account in controlling for it. Education was classified as high school (or its equivalency) or less compared with some college or higher education. Table 2 presents the percentages, means, standard deviations, and coding schemes for the explanatory variables.

We specified a hazard rate regression model to estimate military status (active duty or civilian) and gender differences in the recurrence of spouse abuse among these offenders. A hazard rate is a type of incidence density measure, the ratio of cases to population–time. To specify the most appropriate survival model, we performed preliminary data analyses to determine if a particular parametric function could be found to fit these data. Our analyses did not demonstrate a distinct parametric pattern of hazard distributions. We used the Cox proportional hazard regression model, which eliminates the unknown baseline hazard and accounts for censored survival times through the use of population–time. Note that the unit of analysis for generating these hazard rates is each interval of recurrence rather than each individual.

We applied the Cox hazard rate model in two stages: a marginal model and a conditional model. The marginal model used the Wei, Lin, and Weissfeld (1989) method (SAS Institute, 1996), which creates two independent variables, each representing the two values of recurrences of abuse. Each independent variable is then associated with two regression coefficients. Second, we used the Prentice, Williams, and Peterson (1981) method to analyze the conditional distribution of the hazard rate for spouse abuse. Because the hazard rate within this context is conditional on a previous spouse abuse incident, the duration time is specified as the time between incidents.

Table 2
Percentages, Means, Standard Deviations, and Coding Schemes of Explanatory Variables: Offenders in the Army Central Registry, 1989–1997

Explanatory variable	%	*M*[a]	*SD*	Coding scheme
Civilian	28		0.45	0 = *civilian*, 1 = *active duty*
Male	71		0.45	0 = *no*, 1 = *yes*
No. of dependents		2.97	1.46	Actual number of offender's dependents from records
Age		27.04	5.52	Actual number of years from birth
Education	92		0.27	0 = *college or higher*, 1 = *below college*
Race				
White	38		0.49	0 = *no*, 1 = *yes*
Black	51		0.50	0 = *no*, 1 = *yes*
Alcohol and/or drug involvement				
No	56		0.50	0 = *no*, 1 = *yes*
Yes	27		0.44	0 = *no*, 1 = *yes*

Note. $N = 48,330$.
[a] The mean for a dichotomous variable indicates the proportion of those who are coded 1 with respect to that variable.

Statistically significant regression coefficients may not necessarily translate into strong differences in survival rates because such differences also depend on the magnitude of the baseline hazard that is unobservable in the Cox hazard model (Teachman & Hayward, 1993). Therefore, a presentation of differential survival is highly useful for this study. The hazard rate is intimately related to the survival function, which is a set of rates of survival to a specific event (in this case, recurrences of spouse abuse; Lawless, 1982). We applied the product-limit method (Kalbfleisch & Prentice, 1980) to derive a set of military-status- and gender-specific proportions surviving to the recurrence of spouse abuse at the beginning of each month. In estimating these survival rates, we fixed the values of other explanatory variables as their sample means, so that the difference in the survival functions in the four subgroups of military status and gender can be compared effectively for this population. In addition, from these survival rates, monthly probability densities of spouse abuse for these subgroups can be readily calculated.

Results

The number and percentage of male and female active-duty and civilian offenders for the first and second recurrences of spouse abuse are shown in Table 1. We computed both a marginal model and a conditional hazard model (see the Method section) and found similar results for both. Therefore, we present only the conditional hazard model, a more parsimonious procedure.

Conditional Hazard Model

After controlling for other variables (number of dependents, age, education, race, and alcohol and/or drug involvement), we found that male offenders and civilian offenders had significantly higher risks of recidivist incidents than female offenders and active-duty offenders (see Table 3). The hazard ratio, the exponentiated value of each regression coefficient, is presented in column 4 of Table 3. This value is the relative risk of the indicated variable to its reference group. For example, the reference group for civilian offenders is active-duty offenders. The relative risk of a recurrent incident of spouse abuse for civilian offenders compared with active-duty offenders was 1.12. This means that civilians were 12% more likely to have a recurrence of spouse abuse at some point during our observation period (70 months). Similarly, men were 55% more likely to abuse their wives again than were women to abuse their husbands. We tested for the effect of a Military Status × Gender interaction. This term did not contribute significantly to the model, so it was not included. Thus, the effect of active-duty status and the effect of gender are independent of each other, with gender exerting a much stronger influence than military status on the recurrence of spouse abuse.

Although the focus of our research was on active-duty status and gender differences of offenders in recurrent spouse abuse, some associations among the other explanatory variables are worth noting. These variables were held constant at their sample means and were not the subjects of the study. However, these results may be explored further in future studies. The number of dependents and education were negatively related to the recurrence of spouse abuse, whereas age showed a positive relation. Blacks were more likely than other races (excluding Whites) to have recurrences of spouse abuse, whereas Whites were less likely to have recurrences of spouse abuse. Two coefficients involving substance use or nonuse were computed in reference to "unknown" and missing values. Both coefficients were significant (see Table 3), but the no-substance-use reference group indicated that this group was more likely to have a recurrence of spouse abuse (due to the fact that its coefficient was less negative than the coefficient for substance involvement). The results should be interpreted as preliminary and relevant to this population. The more appropriate comparison would be between known substance involvement and noninvolvement, but that was not possible in this study. However, this finding does show the importance of case workers inquiring about drug and alcohol use, thereby decreasing the magnitude of the "unknown" category.

Conditional Probabilities and Survival Functions

The probability of a recurrence for each of the four subgroups increased to a peak at 2 months (not shown) and then declined steadily thereafter until the end of the study period (70 months). The conditional probability of spouse abuse recurrence at the 2nd

Table 3
Results of Cox Proportional Hazard Regression for Spouse Abuse for the Conditional Model: Offenders in the Army Central Registry, 1989–1997

Explanatory variable	Regression coefficient	*SE*	exp(β)[a]	% change
Civilian	0.1157**	0.0374	1.1227	12
Male	0.4386**	0.0381	1.5505	55
No. of dependents	−0.0477**	0.0082	0.9534	−5
Age	0.0076**	0.0022	1.0076	1
Low education	0.4226**	0.0440	1.5259	53
Race				
White	−0.0797*	0.0402	0.9234	−8
Black	0.2592**	0.0375	1.2959	30
Alcohol and/or drug				
No	−0.0724*	0.0285	0.9302	−7
Yes	−0.1551**	0.0330	0.8563	−14

Note. N = 96,660 events. Model $\chi^2(9) = 562.41$, $p < .01$.
[a] Beta of the regression coefficient (hazard ratio).
* $.01 < p < .05$. ** $p < .01$.

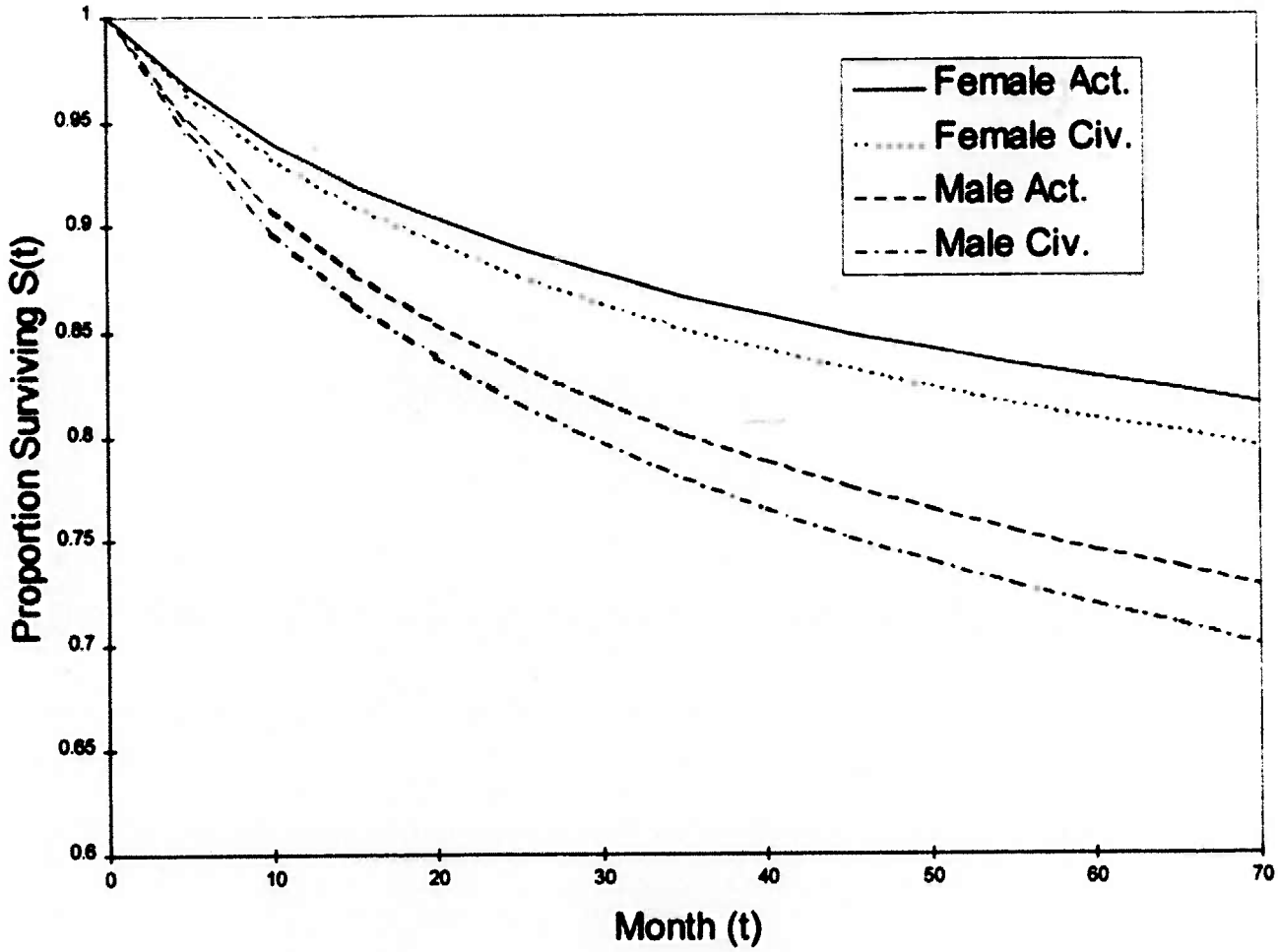

Figure 1. Survival functions of male civilians, female civilians, male active-duty personnel, and female active-duty personnel. S(t) = survival at time *t*; t = time *t*; Act. = active duty; Civ. = civilian.

month was .0148 for male civilian offenders and .0086 for female active-duty soldiers. The other two subgroups were between these two values. Thus, out of 1,000 male civilian offenders who have had a previous incident, about 15 would be expected to have another incident at the 2nd month of follow-up. In contrast, out of 1,000 female active-duty offenders, 8 or 9 would be expected to have another incident at 2 months after the initial incident.

We used survival functions to further examine military status and gender differences in the recurrence of spouse abuse incidents. The presentation of survival functions has two advantages. First, all groups start from the same point with a value of 100% survival rate, so gender and military status differences in recurrent abuse incidents can be compared over time. Second, the discrete probability density function (the conditional probability) can be calculated to demonstrate risk functions.

Figure 1 plots the survival functions derived from the conditional model for the four subgroups of offenders and shows the strong effects of both the offenders' military status and gender on the recurrence of spouse abuse incidents. First, men, both civilian and active duty, were more likely than women to have a recurrent incident of spouse abuse (two lower functions). Secondly, within gender, civilians were more likely than active-duty soldiers to have a recurrence of spouse abuse. At the end of 70 months, 30% of the male civilian offenders were likely to have a recurrence of spouse abuse, followed by male active-duty offenders (27%), female civilian offenders (21%), and female active-duty offenders (19%). (These figures can be obtained from Figure 1 by subtracting each of the values at 70 months from 100.)

At each time point, male offenders or civilian offenders were expected to have a considerably higher chance of offending in an additional incident than were female offenders or active-duty offenders, with the effects of age, race, educational attainment, number of dependents, and drug and/or alcohol involvement controlled.

Discussion

Although it may not be surprising that the men in this study had higher recidivism than the women, it is somewhat surprising that the male civilians were quicker to have a recidivist incident than the active-duty personnel. Civilians who are married to active-duty personnel differ in some important ways from civilians in the United States who have no affiliation with the military. The socioeconomic status of the men and women in the military

community is controlled to some degree in that military service provides a socioeconomic floor for all active-duty members and their families. Even if the civilian spouse is unemployed, the family still has an income from the active-duty member. In addition to an income, all military families have housing (or a monetary housing allowance), free medical care, and access to a wealth of personal and community services.

However, it is possible that reports of incidents by a civilian spouse would be less likely because she or he knows that there could be adverse consequences for the military member that would be felt by the couple or family in terms of a loss of benefits were the soldier to be dismissed from the military. The likelihood of such consequences may be less for a military member who reports an incident by a civilian spouse abuse offender. However, this hypothesis is difficult to check because most reports (over 45%) are from the military police and only a small percentage of reports are from victims (about 8%) and offenders (about 4%; McCarroll et al., 1999)

The possibility that a spouse abuse incident may hinder the chance of soldiers remaining in the Army may also make recidivism less likely. In addition, intrinsic factors such as supervision and discipline may also make abuse less likely than in the civilian community. There may also be less recidivism in the military because active-duty spouse abusers can be required to attend treatment. The military can exert no such requirement on civilians. Unfortunately, we have no information on any treatment that might have been received by these men and women that could affect recidivism. Some form of treatment is recommended for virtually everyone, so this information is not helpful.

The ACR is an administrative database and does not contain treatment or outcome information. At this time, there is no database that contains such information.

Chronic and severe offenders may be dismissed from the Army sooner than lesser offenders, but this has not been documented and only remains a possibility. We attempted to examine this possibility within our data. Active-duty offenders did leave the military sooner than did the military spouses of civilian offenders; however, these differences were minor and were unlikely to have influenced any of our results. At 70 months, the probability of censorship was .76 for the active-duty soldiers and .70 for the civilians, a 6% difference in the two groups. Future studies should examine this issue more closely and with prospective data.

The fact that recurrence peaked at 2 months has implications for possible prevention of further incidents. For example, a follow-up visit or phone call to the offender or victim might be of value at this time. It is not known why this peak occurs; it remains a topic of future research interest.

Substance abuse treatment was included as a control variable in this study. It was found that those persons without self-reported or documented substance involvement were more likely to have a recurrent incident than those with reported substance involvement. We do not know how reliable the substance data are because offenders may not tell the truth and case workers are not likely to find evidence other than the report of the persons involved in the incident. If no substance involvement is a better predictor of recidivism than involvement, then treatment can be concentrated elsewhere, except for those persons who have documented substance involvement as a contributing factor for spouse abuse.

There are possible biases in these data that are beyond statistical control. For example, because the military police are the most frequent referral source for FAP spouse abuse cases, any biases in their handling of incidents in favor of women or active-duty persons could significantly affect the system. Because FAP cases have to be substantiated by a committee, it is also possible that they could be biased in favor of these same groups. For example, women's violence might be seen as defensive to a greater degree than that of men. Further studies should be performed to investigate these and other possible sources of bias in case referral and substantiation.

We are also aware that there are many incidents of spouse abuse, initial and recidivist, that are unreported. Hence, we do not claim that this article is an exhaustive report of all incidents.

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