Even criminals take a holiday: Instrumental and expressive crimes on major and minor holidays

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Abstract

Based on routine activity (RA) theory, the authors hypothesized that crime rates would vary with both the type of crime and the type of holiday, with violent crimes occurring more frequently and property crimes occurring less frequently on major holidays that brought families together in the home. It was also hypothesized that minor holidays would have little or no impact on crime rates. These hypotheses were tested by subjecting data on calls for service in Minneapolis, Minnesota, in 1985, 1987, and 1988 to time series analyses. After controlling for time of day, day of week, month, four weather variables, the first day of the month, linear trend, and autocorrelation, regression analyses indicated that both violent and property crimes were significantly related to major (or legal) holidays, whereas neither type of crime was more likely to occur on minor holidays. Crimes of expressive violence were significantly more prevalent on major holidays, whereas property crimes were less frequent on those days.
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Introduction

Holidays present something of a problem for supervisors in police departments who have to prepare duty rosters and assign personnel. They have to decide how many individuals will work on days when most individuals want to stay at home with their families. This decision is typically made on what often amounts to little more than supposition and folklore—for example, it is reasonable to assume that there might be more crimes on New Year's Eve because the New Year is usually ushered in with a toast, and it is known that alcohol increases the probability of aggressive behavior (Dillingham, 1991).

Very little is known about which crimes might occur more frequently on holidays and which occur less frequently. In one of the few studies to address this issue, Lester (1979) found that a disproportionate number of homicides in the United States were recorded as having occurred on major holidays (New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day). Lester (1987) subsequently expanded this finding to include Good Friday and Easter. Similarly, Templer, Brooner, and Corgiat (1983) reported analyses that indicated that calls for police service were more frequent on national holidays and local holidays, such as Cinco de Mayo[1] in Fresno, California. Rotton and Frey (1985) also found that complaints about family and household disturbances were more prevalent on holidays than other days. On the other hand, several studies failed to uncover reliable differences between holidays and other days. This included the previously mentioned study by Rotton and Frey, whose analyses indicated that assaults were no more likely to be reported to the police on holidays than on other days.

Past studies could be faulted for failing to draw a distinction between different types of holidays. It

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could be argued that very little could be learned from grouping together holidays as disparate as New Year's Eve, President's Day, Independence Day, Thanksgiving, and Christmas into a single, all-encompassing category. This is, in fact, contrary to predictions that can be derived from routine activity (RA) theory. According to RA theory (Cohen & Felson, 1979), changes in routine or typical activities increase the probability that individuals will be vulnerable to certain types of criminal victimization. Not only do holidays potentially have considerable impact on individual activities, the specific holiday may also affect the type of behavior that people choose to enact. Many holidays result in the closing of schools, government offices, and even some businesses, thus clearly influencing the routine activities of those individuals who would normally be spending the day at school or work. In addition, the traditional behaviors, rituals, and activities that are associated with certain holidays frequently result in altered patterns of routine activities and, therefore, may affect the likelihood of specific types of crimes.

This study explored the possibility that the impact of individual holidays on crime rates might be affected not only by the type of behavior encouraged by the holiday, but also by the type of crime being studied. Criminal activity may be divided into two categories, based on motivation: expressive crime and instrumental crime.[2] Expressive crime, which is sometimes termed affective aggression, involves violence that is not directed at the acquisition of anything tangible or designed to accomplish anything specific other than the violent outcome itself. Assaults, disorders, and domestic violence are examples of expressive crime. Instrumental crime, on the other hand, involves behavior that has a specific tangible goal, such as the acquisition of property. Predatory crimes, such as theft, burglary, and robbery,[3] are examples of instrumental crime.

Many major holidays, such as Thanksgiving and Christmas, bring family members into close and sometimes intense proximity (i.e., "home for the holidays"[4]). On these holidays, which families frequently spend together and at home, the concatenation of motivated offenders and suitable victims may increase the opportunities for crimes of expressive violence involving family members and acquaintances. By definition, crimes of domestic violence are committed by family members; in addition, a large percentage of assaults and disorders involve victims and offenders who know each other in some way (Rotton & Cohn, 2001). Thus, these holidays frequently create gatherings that bring together large numbers of motivated offenders and suitable victims in a celebratory setting.

In addition, family gatherings may affect the likelihood of alcohol consumption, which may also increase the probability of expressive violence. Research showed (see, e.g., Collins, 1981; Fagan, 1990) that alcohol was a contributing factor in a large percentage of all assaults. According to the Bureau of Justice Statistics (Dillingham, 1991), surveys indicated that victims of violence reported that their assailants were under the influence of drugs or alcohol in approximately 36 percent of these crimes. A more recent study of alcohol and crime by the Bureau of Justice Statistics (Greenfeld, 1998), also found a strong relationship between alcohol use and domestic violence. Using data from the National Crime Victimization Survey, Greenfeld (1998, p. v) stated that "Two-thirds of victims who suffered violence by an intimate . . . reported that alcohol had been a factor. Among spouse victims, three out of four incidents were reported to have involved an offender who had been drinking."

At the same time, there may be fewer opportunities for instrumental crimes, such as home burglaries, during major holidays, because of the decreased number of suitable targets (empty homes) and because of the increased presence of capable guardians. Although it is true that certain holidays are popular travel periods and that some homes may be left empty and unguarded while the residents spend the holiday period at the home of a relative or friend, the number of occupied (and thus guarded) homes may still be greater on a holiday than on a "normal" (nonholiday) day, when everyone would be out of the home due to their involvement in routine activities, such as work or school. Thus, the home that is occupied while family and friends gather to celebrate the holiday may normally be left empty during nonholiday days. In addition, according to RA theory, one of the requirements for predatory crimes, such as burglary, is the absence of a capable guardian. As Felson (1998) points out, "with a guardian present, the offender avoids attempting to carry out an offense in the first place" (p. 53). The presence of a large group of people, such as occurs during holiday family get-togethers, may also reduce the likelihood of robbery and theft, as potential victims are "guarded" by others in the group or by an increased number of people at a neighboring home. Finally, it is also possible that the number of motivated offenders of property crimes may decrease during holiday periods; as the title of this article suggests, offenders also may prefer to "take a holiday," spending the day celebrating with family or friends rather than committing crimes.

RA theory suggests that changes in crime rates should be associated primarily with those holidays whose celebrations and rituals affect daily routine activities. In the prior research, nearly all of the holidays found to be associated with changes in criminal behavior were federal or "national" holidays

(those on which government offices were closed). Minor holidays do not usually involve major changes to daily activities and, consequently, generally should not be associated with significant changes in patterns of criminal behavior. The only "minor" holiday ever found to show a relationship with crime rates was Halloween (Rotton & Frey, 1985). It is possible that this result can be traced to the anonymity provided by Halloween costumes (Diener, Fraser, Beaman, & Kelem, 1976).

Research on holidays and criminal behavior to date was based on daily totals of crime, making it difficult to compare the effects of holidays on different kinds of criminal behavior. In particular, it was not possible to obtain reliable estimates of events (e.g., Christmas, Independence Day) that occurred no more than once a year (i.e., one day out of every 365). The research presented here addressed this problem by basing estimates on three-hour rather than twenty-four-hour averages; this had the effect of increasing the number of estimates for each holiday from one to eight during each year. The analyses presented here were based on data covering a three-year period, yielding twenty-four observations during most holidays.[5] This method also increased the accuracy of the temperature variable, which varied considerably over twenty-four-hour periods.

In moving to more frequent and informative analyses of specific holidays, analysts encountered a problem that earlier investigators were able to avoid when they summed over holiday periods. Although past studies generally ignored the possibly confounding effects of seasonal trends and weather conditions, there was ample evidence to suggest that fewer crimes were reported to the police during winter than other seasons (Baumer & Wright, 1996). Further, consistent with predictions derived from RA theory, prior studies in this series (Cohn & Rotton, 1997, 2000) found that cold weather appeared to inhibit criminal activity. Thus, it was possible that fewer crimes would be recorded on certain holidays, such as President's Day, simply because they happened to fall on cold days during winter months. The problem of seasonality was addressed by including dummy variables to control for months of the year, and hierarchical regression was employed to control for the possibly confounding effects of weather variables.

Method

The data for this research consisted of all nonduplicate calls for service received by the Minneapolis (Minnesota) Police Department between 12:00 a.m. on January 1, 1985, and 11:59 p.m. on December 31, 1985, and between 12:00 a.m. on January 1, 1987, and 11:59 p.m. on December 31, 1988. The data were grouped into three-hour periods (12:00–2:59 a.m., 3:00–5:59 a.m., etc.) to match reports that were obtained from the National Weather Service. Preliminary analyses revealed that the computer-aided dispatching (CAD) equipment used to record incoming calls was inoperative on six occasions (3.5 percent of the series). The data set included three-hour totals for assault, disorderly conduct, domestic violence, burglary, theft, and robbery. The file also included data on rapes (Cohn, 1993), but preliminary analyses indicated that there were too few rapes to permit a comparison during holiday and nonholiday periods.[6]

Dummy variable (1,0) coding was used to assess differences between holiday and other periods. The holidays studied were New Year's Day, Valentine's Day, President's Day, St. Patrick's Day, Memorial Day, Independence Day, Labor Day, Halloween, Veteran's Day, Thanksgiving Day, Christmas Eve, Christmas Day, and New Year's Eve (see Table 1).[7] Martin Luther King Day was not examined because the data were collected before it became a national holiday. There was also some ambiguity about Columbus Day, which led to its exclusion from the analyses reported here. On the one hand, Columbus Day could be classified as a major holiday on which the postal service did not deliver mail; on the other hand, Columbus Day was not a school holiday in Minneapolis (http://www.mpls.k12.mn.us/about/calendar_2002.shtml).[8] All but two holidays spanned three days (twenty-four periods). The exceptions were New Year's Eve and New Year's Day, which were represented by sixteen periods, because the CAD system was inoperative during one of the holiday periods.

Controls

The data set included four measures of meteorological conditions: temperature, relative humidity, wind speed, and percentage of the sky covered by clouds (see Cohn, 1993, for a detailed description of the data). Previous analyses using this data set indicated that violent (but not property) crimes were an inverted U-shaped function of temperature[9] (Cohn, 1996; Cohn & Rotton, 1997). Therefore, scores for temperature were first centered (i.e., converted into deviation scores) and then squared to control for temperature's quadratic trend (Aiken & West, 1991). The model also included dummy variables to control for the first of the month (the day on which welfare checks were received and individuals earning monthly salaries were paid). The file was expanded to include an additional eleven dummy variables to control for months of the year, seven dummy variables to control for time of day, six dummy variables

Table 1
Holiday means and S.D. for violent and property crimes

Holiday	Assault	Disorder	Domestic violence	Theft	Burglary	Robbery
Major holidays						
New Year's Day						
Mean	12.00	29.63	19.63	6.94	5.25	1.44
S.D.	10.93	24.75	11.40	2.86	3.66	1.09
President's Day						
Mean	3.38	14.46	7.38	6.46	4.46	0.88
S.D.	2.55	6.73	5.00	4.00	2.41	1.26
Memorial Day						
Mean	5.08	22.88	9.04	6.67	5.50	0.88
S.D.	3.89	16.70	5.70	3.63	2.65	0.90
Independence Day						
Mean	7.58	53.54	10.25	6.29	5.21	1.38
S.D.	7.00	49.05	6.71	3.99	3.86	2.10
Labor Day						
Mean	5.96	30.42	10.25	7.21	6.54	1.21
S.D.	5.80	18.62	7.47	4.58	3.86	1.50
Veteran's Day						
Mean	5.54	18.67	8.79	8.75	6.08	1.25
S.D.	4.25	11.79	5.56	4.94	3.69	1.15
Thanksgiving						
Mean	5.13	16.25	10.21	4.63	5.17	0.50
S.D.	5.46	12.10	5.36	2.16	3.67	0.83
Christmas						
Mean	3.21	12.38	9.92	3.42	4.33	0.13
S.D.	2.62	8.90	6.43	2.19	3.45	0.34
Minor holidays						
Valentine's Day						
Mean	4.67	17.17	8.67	5.42	4.38	0.96
S.D.	5.65	11.52	6.16	3.39	2.75	1.23
St. Patrick's Day						
Mean	5.33	18.54	7.96	6.04	3.83	0.58
S.D.	4.23	9.97	4.19	3.79	2.53	1.06
Halloween						
Mean	5.50	28.46	9.17	8.33	4.83	1.63
S.D.	5.25	19.71	4.73	4.31	3.51	1.79
Christmas Eve						
Mean	5.75	19.96	12.54	6.13	5.58	0.96
S.D.	6.40	13.40	8.13	3.31	3.19	1.08
New Year's Eve						
Mean	5.00	20.94	11.81	6.75	4.38	1.13
S.D.	4.26	14.69	6.95	4.95	2.55	1.09
Other days						
Mean	6.18	25.97	9.68	7.56	5.14	1.23
S.D.	5.45	21.38	6.82	4.47	3.01	1.47

to control for day of the week, and forty-two dummy variables to capture variance due to the interaction between time of day and day of the week. The year was divided into months rather than quarters to avoid debates (cf. Kevan, 1979) about when seasons started and how long they lasted. Finally, a sequence variable was assigned to each case, starting with one and ending with 8,768, to control for linear trend.

Results

Violent crime

Preliminary analyses indicated that the distributions for assaults, domestic violence, and disorderly conduct were positively skewed (i.e., had a long right-hand tail). Following Cohen and Cohen's

(1983) recommendations, a square root transformation was applied to obtain more normal distributions for assaults and domestic violence. The distribution for disorderly conduct was so badly skewed that a logarithmic transformation (i.e., $\log X + 1$) was found to be more effective in reducing this variable's coefficient.[10] For all violent crimes, descriptive data (means and S.D.) are presented in Table 1 and the conservative analyses of the hypotheses (regression coefficients and S.E.) are presented in Table 2. Table 1 may be of more use to those who deal with crime on a daily or even hourly basis (e.g., practitioners), while Table 2 may be of more interest to those concerned with the possibility of rival hypotheses.

Assaults

Holidays attained significance when they were entered as the first set of predictors, $F(13,8451) = 2.57$, $P < .01$. From the data in Table 1 and in the regression coefficients in Table 2, it can be seen that nearly twice as many complaints were received on New Year's Day than on nonholiday periods (means = 12.00 versus 6.18). On the other hand, approximately half as many complaints were received on Christmas Day (mean = 3.21) and on President's Day (mean = 3.38) than on other (nonholiday) days. These contrasting differences (i.e., higher on New Year's Day and lower on two other holidays) gave some insight into why differences did not attain

Table 2
Regression coefficients (and S.E.) for holidays on violent crime rates

Holiday	Violent crime					
	Assaults		Disorders		Domestic violence	
	First	Last	First	Last	First	Last
Major holidays						
New Year's Day	0.967***	6.540***	0.065	0.255***	1.359***	1.478**
	(0.279)	(1.034)	(0.078)	(0.045)	(0.274)	(0.196)
President's Day	− 0.615**	− 0.208	− 0.177**	0.015	− 0.430	0.116
	(0.228)	(0.793)	(0.064)	(0.035)	(0.224)	(0.151)
Memorial Day	− 0.175	− 0.095	− 0.051	− 0.027	− 0.059	0.174
	(0.228)	(0.792)	(0.064)	(0.035)	(0.224)	(0.150)
Independence Day	0.226	− 0.506	0.255***	0.113***	0.156	− 0.038
	(0.228)	(0.787)	(0.064)	(0.034)	(0.224)	(0.150)
Labor Day	− 0.175	− 0.265	0.100	0.085*	0.036	0.214
	(0.228)	(0.788)	(0.064)	(0.035)	(0.224)	(0.150)
Veteran's Day	− 0.064	0.434	− 0.123	− 0.031	− 0.083	0.205
	(0.228)	(0.792)	(0.064)	(0.035)	(0.224)	(0.150)
Thanksgiving	− 0.208	0.550	− 0.191**	− 0.062	0.175	0.488***
	(0.228)	(0.792)	(0.064)	(0.034)	(0.224)	(0.151)
Christmas Day	− 0.599**	− 0.924	− 0.291***	− 0.126***	0.085	0.268
	(0.228)	(0.791)	(0.064)	(0.035)	(0.224)	(0.150)
Minor holidays						
Valentine's Day	− 0.353	− 0.053	− 0.149*	− 0.014	− 0.175	0.022
	(0.228)	(0.782)	(0.064)	(0.034)	(0.224)	(0.141)
St. Patrick's Day	− 0.173	0.234	0.095	− 0.008	− 0.188	− 0.014
	(0.228)	(0.785)	(0.064)	(0.034)	(0.224)	(0.150)
Halloween	− 0.194	− 1.414	0.057	0.054	0.008	− 0.018
	(0.228)	(0.786)	(0.064)	(0.034)	(0.224)	(0.150)
Christmas Eve	− 0.082	1.245	− 0.076	0.044	0.443	0.521***
	(0.228)	(0.791)	(0.064)	(0.035)	(0.224)	(0.150)
New Year's Eve	− 0.148	− 0.858	− 0.090	− 0.006	0.384	0.272
	(0.279)	(0.963)	(0.078)	(0.042)	(0.274)	(0.183)
F	2.57**	7.35***	5.51***	10.52***	2.83***	10.10***

Degrees of freedom are 8415 and 8378 for residuals on the first and second steps, respectively.
* $P < .05$.
** $P < .01$.
*** $P < .001$.

significance in studies (Cohn & Rotton, 1997) that grouped holidays together and compared them with all other days. Indeed, a nonsignificant coefficient was obtained when a planned contrast was performed, comparing the mean number of assaults on holidays with the number on all other days, $t(8451) = 1.86$, $P > .05$.

Holidays also attained significance when the analyses were expanded to include controls for weather variables and temporal controls for first of the month, month of the year, day of the week, time of day, and their interaction, $F(13,8378) = 7.35$, $P < .001$.[11] From the coefficients in Table 2, it can be seen that the differences for both Christmas Day and President's Day shrank to nonsignificance. In both analyses, assaults were related only to major holidays; no minor holiday attained significance. Combined with the nonsignificant coefficient for New Year's Eve, the positive coefficient for New Year's Day in Table 2 at first seemed to be counterintuitive. A more detailed inspection of crimes on these days (see Fig. 1) indicated that most assaults occurred between the hours of midnight and 6 a.m. on New Year's Day. Thus, the unexpected increase in assaults on New Year's Day appeared to be due to behavior (possibly excessive drinking) that was initiated the night before.

Disorderly conduct

The dummy variables for holidays attained significance, $F(13,8451) = 5.51$, $P < .001$, when they were first set in the analyses. The data in Table 1 and the regression coefficients in Table 2 show that more than twice as many complaints about disorderly conduct were received on Independence Day than on other days (means = 53.54 versus 25.97). At the same time, there were significantly
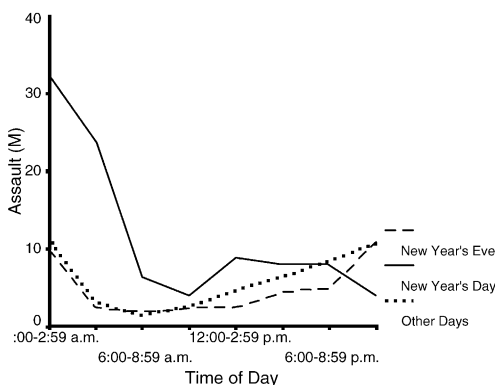

Fig. 1. Relationship between time of day and assaults on New Year's Eve, New Year's Day, and other days.

fewer calls concerning disorders on President's Day (mean = 14.46), Valentine's Day (mean = 17.17), Thanksgiving (mean = 16.25), and Christmas Day (mean = 12.38). While the coefficients for President's Day, Valentine's Day, and Thanksgiving fell to a nonsignificant level when the analyses controlled for weather variables, temporal controls, and autocorrelation, there were significantly more disorderly conduct complaints on New Year's Day (mean = 29.63) and Labor Day (mean = 30.42) than on other (non-holiday) periods.[12] The greater number of complaints on Independence Day and the smaller number on Christmas Day retained their significance. With the exception of the significant relationship between Valentine's Day and disorderly conduct in the first analysis, disorderly conduct was related only to major holidays.

Domestic violence

Holidays also attained significance in the analysis of domestic violence, $F(13,8451) = 2.83$, $P < .001$. Referring to Table 1, it can be seen that there were more than twice as many domestic violence calls on New Year's Day than on other days (means = 19.63 versus 9.68). When holidays were entered into the equation after the controls for temporal variations, weather, and autocorrelation,[13] it appeared that the weather and seasonal differences were masking significantly larger numbers of complaints on Thanksgiving Day (mean = 10.21) and Christmas Eve (mean = 12.54). As with other violent crimes, significant changes in domestic violence complaints occurred only on major holidays.

Overall, changes in the number of violent crimes were related only to major holidays. The only exception was the significant decrease in disorderly conduct on Valentine's Day, but this relationship disappeared after weather and temporal variables were included in the analysis.

Property crime

Preliminary analyses indicated that the distributions for theft, burglary, and robbery were also skewed. A square root transformation was used to produce more normal distributions.[14] For all property crimes, descriptive data (means and S.D.) are presented in Table 1 and the conservative analyses of the hypotheses (regression coefficients and S.E.) are presented in Table 3.

Theft

A significant main effect was obtained for holidays, $F(13,8451) = 3.44$, $P < .001$. From the data in Table 1 and the regression coefficients in Table 3, it

Table 3
Regression coefficients (and S.E.) for holidays on property crime rates

| Holiday | Property crime | | | | | |
| | Theft | | Burglary | | Robbery | |
	First	Last	First	Last	First	Last
Major holidays						
New Year's Day	− 0.016	0.174	− 0.034	0.165	0.232	0.023
	(0.224)	(0.184)	(0.181)	(0.184)	(0.187)	(0.185)
President's Day	− 0.195	− 0.039	− 0.121	− 0.027	− 0.212	− 0.054
	(0.183)	(0.143)	(0.147)	(0.143)	(0.152)	(0.142)
Memorial Day	− 0.124	− 0.196	0.119	− 0.009	− 0.118	− 0.049
	(0.183)	(0.143)	(0.147)	(0.143)	(0.152)	(0.142)
Independence Day	− 0.225	− 0.505***	− 0.073	− 0.373**	0.007	− 0.149
	(0.183)	(0.142)	(0.147)	(0.141)	(0.152)	(0.142)
Labor Day	− 0.084	− 0.226	0.305*	0.177	0.004	− 0.065
	(0.183)	(0.142)	(0.147)	(0.142)	(0.152)	(0.142)
Veteran's Day	0.144	0.109	0.170	0.187	0.072	0.065
	(0.183)	(0.142)	(0.147)	(0.141)	(0.152)	(0.142)
Thanksgiving	− 0.506**	− 0.462**	− 0.043	0.076	− 0.420**	− 0.402**
	(0.183)	(0.143)	(0.147)	(0.143)	(0.152)	(0.143)
Christmas Day	− 0.875***	− 0.589***	− 0.227	− 0.042	− 0.693***	− 0.609***
	(0.183)	(0.142)	(0.147)	(0.142)	(0.152)	(0.142)
Minor holidays						
Valentine's Day	− 0.410*	− 0.142	− 0.165	0.041	− 0.171	− 0.050
	(0.163)	(0.141)	(0.147)	(0.141)	(0.152)	(0.141)
St. Patrick's Day	− 0.298	− 0.033	− 0.362*	− 0.242	− 0.396**	− 0.290*
	(0.183)	(0.141)	(0.147)	(0.144)	(0.152)	(0.141)
Halloween	0.189	0.068	− 0.135	− 0.167	0.125	0.014
	(0.183)	(0.141)	(0.147)	(0.141)	(0.152)	(0.141)
Christmas Eve	− 0.219	− 0.066	0.047	0.233	− 0.094	− 0.068
	(0.183)	(0.142)	(0.147)	(0.142)	(0.152)	(0.142)
New Year's Eve	− 0.155	− 0.039	− 0.136	− 0.011	0.002	− 0.026
	(0.224)	(0.173)	(0.181)	(0.172)	(0.187)	(0.173)
F	3.44***	5.68***	1.40	1.78	3.18***	2.64***

See Table 2 for degrees of freedom.
* $P < .05$.
** $P < .01$.
*** $P < .001$.

can be seen that significantly fewer thefts occurred on Valentine's Day (means = 5.42 versus 7.56), Thanksgiving Day (mean = 4.63), and Christmas Day (mean = 3.42). Weather and temporal variations were controlled for by entering holidays into the equation after the control variables in an autoregression analysis; as a result, the difference on Valentine's Day disappeared, although the declines on Thanksgiving and Christmas Day retained their significance. In addition, it appeared that the weather and seasonal differences masked declines in complaints on Independence Day (mean = 6.29).

Burglary

The dummy variables for holidays did not initially attain significance, $F(13,8451) = 1.40$, $P > .20$. They

did so when the variance due to weather and temporal variables was partialled out, $F(13,8378) = 1.78$, $P < .05$. Further, the deficit in burglaries observed on Independence Day retained its significance ($P < .01$) in analyses that controlled for autocorrelation.

Robbery

Holidays attained significance when they were entered as a block, $F(13,8451) = 3.18$, $P < .001$. From the regression coefficients in Table 3, it can be seen that fewer robberies were reported on St. Patrick's Day (mean = 0.58), Thanksgiving Day (mean = 0.50), and Christmas Day (mean = 0.13) than other days (mean = 1.23). These differences retained their significance in analyses that controlled for autocorrelation and the temporal and weather variables.

Overall, changes in the number of property crimes were related only to major holidays. The only exception was the significant decrease in thefts on Valentine's Day, but this disappeared after weather and temporal variables were included in the analysis.

Discussion

Based on RA theory, it was hypothesized that variations in crime reporting would be associated with major holidays, while minor holidays were not expected to differ greatly from other days of the year. This hypothesis was confirmed. In addition, holiday differences varied with the type of crime being examined. Although the results of this study's analyses were consistent with theoretical expectations, they indicated that the social and cultural effects of holidays on crime were more complex than originally anticipated.

Type of holiday

In general, it appeared that changes in crime rates were predominately associated with major holidays that produced changes in daily routine activities. For violent crimes, after controlling for weather and temporal variables, assaults significantly increased on New Year's Day, disorderly conduct increased on Independence Day and decreased on Christmas Day, and there were significantly more complaints about domestic violence on Thanksgiving Day and Christmas Eve. Analyses on property crimes that controlled for weather and temporal variables found that theft decreased on Independence Day, Thanksgiving Day, and Christmas Day, burglaries declined on Independence Day, and robberies declined on Thanksgiving Day and Christmas Day.

This result supported the findings of much of the earlier research in this area (e.g., Lester, 1979, 1987; Rotton & Frey, 1985; Templer et al., 1983). After controlling for a variety of temporal and weather variables, it was found that minor holidays, which generally did not involve significant changes to daily activities, were rarely associated with any of the six crimes. It was noted that fewer robberies occurred on St. Patrick's than other days; the researchers had no explanation for this finding other than to suggest that it might be simply a Type I error. There was also a greater prevalence of domestic violence on Christmas Eve than other days, but the difference did not attain significance on Christmas Day. This might stem from the fact that family members frequently gathered to distribute and sometimes opened presents the night before Christmas, and family members who waited until Christmas morning for their children to open

presents might tire out before evening, the time when most disputes were initiated.

Type of crime

The results of this research showed that the effect of holidays on criminal behavior also varied with the type of crime. Specifically, it was clear that expressive crimes were more likely to be reported on most major holidays, while instrumental crimes occurred less frequently during holiday periods. As noted above, almost all the relationships between violent (expressive) crimes and major holidays were positive; the one exception was a decrease in disorderly conduct complaints on Christmas Day. All the relationships between property (instrumental) crimes and holidays were negative, so that there were fewer complaints about these crimes on holidays than other days. There might be some who argue that decreases in burglary on major holidays were due, at least in part, to the fact that the crime of burglary was frequently committed when the victim was absent from home, and thus the victim might not discover and report the crime until after the holiday ended, but this argument was countered by the fact that similar results were obtained for the other property crimes (robbery and theft).

Conclusion

Overall, it was clear from these findings that the impact of holidays on criminal behavior was affected by both the type of crime and the significance of the holiday in modern society. With the exception of St. Patrick's Day, no minor holiday had any significant impact on criminal behavior. Only major, or "national" holidays, which significantly affect daily routine activities, were found to show significant relationships with crime rates. In addition, the impact of holidays on criminal behavior varied greatly with the type of crime; major holidays primarily were associated with an increase in expressive crimes and a decrease in instrumental crimes.

These results were consistent with predictions that might be derived from RA theory, which suggested that major holidays were more likely to affect and alter people's normal daily activities, bringing family and friends together in a setting that frequently involved consumption of alcohol. Although the use of aggregate data could easily lead to the ecological fallacy of drawing inappropriate conclusions about individuals, it was reasonable to assume that the combination of drinking and large gatherings of family and friends during holiday periods created additional opportunities for violent behavior by

bringing together motivated offenders and suitable victims, as well as reducing the number of capable (i.e., not intoxicated) guardians. This situation increased the probability of expressive criminal behavior on major holidays. At the same time, the mere presence of people in the home might serve as a protection against property crimes by simultaneously reducing the number of suitable targets and increasing the number of capable guardians. Cornish and Clarke (1986) pointed out that burglars, who tend to be rational in selecting a target, generally select a residential target with no one at home. Thus, the large gatherings common to many major holidays help to reduce the occurrence of instrumental crime during these times.

Limitations

Although the results of this research were consistent with RA theory, several factors limited the certainty of the conclusions. One of the most obvious was that the results were based on data from one northern U.S. city, namely, Minneapolis, Minnesota. The ethnic and demographic characteristics of this city's populace differed in several important respects from those found in other cities. In particular, it was possible that one of the minor holidays (St. Patrick's Day) would be significantly associated with expressive violence in a city (e.g., Boston or Chicago) whose population included a higher percentage of Irish American residents. Despite these concerns, however, while it was true that Minneapolis was not "Anytown, USA," it was the focus of a number of landmark research studies that had national impact on criminal justice policy. These studies included the Minneapolis Domestic Violence Experiment, Hot Spots, and RECAP (Repeat Call Address Policing).

In addition, because this study used 911 calls, it was vulnerable to all the limitations inherent in the use of such data. These limitations included not only underreporting, which was also a problem with other official measures of crime, but also overreporting. Even given this concern, however, call for service data still "provide the most extensive and faithful account of what the public tells the police about crime, with the specific errors and biases that that entails" (Sherman, Gartin, & Buerger, 1989, p. 36).

Despite these limitations, however, this study's findings extended the current research on holidays and crimes in at least two ways. First, they showed that RA theory could be used to understand and predict criminal behavior during holiday periods. This extension took on added significance when it was realized that holidays typically involved changes in routine activities. Second, the effect of holidays on crime was considerably more complex than prior

research suggested. This research indicated that weather and other temporal variables had to be considered if one was to aspire to a full understanding of the occurrence of criminal behavior on holidays.

Notes

1. Templer et al. (1983) included Cinco de Mayo (Mexican Independence Day) in their research because they felt that, due to Fresno's proximity to the United States/Mexico border, it was possible that this holiday might have an effect upon the behavior of city residents.

2. Felson (1998) points out that some scholars currently suggest that expressive violence may not exist. For example, Tedeschi and Felson (1994) argue that crimes that have been traditionally classified as expressive violence also may be goal-oriented. Possible goals of crimes, such as assault or domestic violence, include behavior control, retribution and restoration of justice, or the assertion and protection of one's identity or self-image.

3. Although robbery is more commonly classified as a violent crime, the violence involved is usually subservient and instrumental to the goal of taking another person's property. Therefore, for the purposes of this research, robbery was considered to be an example of instrumental criminal behavior.

4. The Bureau of Transportation Statistics (1997) found that the majority of holiday trips made during the period that includes Thanksgiving, Christmas, New Year's Eve, and New Year's Day were to visit family and friends; leisure and business travel were much less common during this period than during the year as a whole. The Minnesota Poll examined behavior on Independence Day (Wascoe, 1983) and found that over 50 percent of Minnesotans planned to participate in a family activity, such as a cookout or picnic.

5. The data set was previously employed (Cohn & Rotton, 1997, 2000) to examine two years of data (1987 and 1988). This study expanded the analysis to include a three-year period, increasing the number of holiday periods and thus enhancing the reliability of the results.

6. The number of rape calls ranged from zero to five in the three-hour blocks; as a consequence, its distribution was right-skewed, skew (Sk) = 2.529, $Z = 96.33$, $P < .001$, and platykurtic, $K = 7.488$, $Z = 141.28$, $P < .001$.

7. The dates of the holidays are New Year's Day, January 1; Valentine's Day, February 14; President's Day, February 18, 1985, February 16, 1987, February 15, 1988; St. Patrick's Day, March 17; Memorial Day, May 27, 1985, May 25, 1987, May 30, 1988; Independence Day, July 4; Labor Day, September 2, 1985, September 7, 1987, September 5, 1988; Halloween, October 31; Veteran's Day, November 11; Thanksgiving, November 28, 1985, November 26, 1987, November 24, 1988; Christmas Eve, December 24; Christmas Day, December 25; New Year's Eve, December 31.

8. Subsidiary analyses provided some justification for the decision to exclude Columbus Day. The regression coefficient for the holiday did not attain significance when it was included as part of the first set of predictors in the

analysis of transformed assaults, $t(8450) = -0.01$, domestic violence, $t(8450) = -1.17$, $P > .20$, disorders, $t(8450) = 0.41$, thefts, $t(8450) = 1.36$, $P > .10$, burglary, $t(8450) = -0.44$, and robbery, $t(8450) = 0.30$.

9. In other words, there appeared to be a curvilinear relationship between violent (but not property) crimes and temperature, so that the rate of violent crimes decreased at very high and very low temperatures and increased at moderate temperatures.

10. For assaults, $Sk = 1.76$, $Z = 65.07$, $P < .001$; for domestic violence, $Sk = 1.29$, $Z = 47.89$, $P < .001$; and for disorderly conduct, $Sk = 2.35$, $Z = 87.44$, $P < .001$. The transformations significantly reduced these coefficients: for assaults, $Sk = 0.16$, $Z = 5.82$, $P < .001$; for domestic violence, $Sk = 0.17$, $Z = 6.19$, $P < .001$; and for disorderly conduct, $Sk = -0.09$, $Z = -3.22$, $P < .01$.

11. This model's residuals were not independent, as was shown by a Durbin–Watson d statistic of 1.59 that corresponded to an autoregression coefficient of 0.20. Therefore, Cochrane–Orcutt's procedure was employed to obtain generalized least squares estimates of regression coefficients and their standard errors (Ostrom, 1990).

12. As in the analyses of assaults, a significant Durbin–Watson d of 1.53 was obtained when the analysis of disorderly conduct was expanded to include the previously described weather and temporal variables.

13. Autocorrelation controls were used to correct for a significant Durbin–Watson d of 1.72 in the analyses of domestic violence.

14. For theft, $Sk = 0.71$, $Z = 7.32$, $P < .001$; for burglary, $Sk = 0.87$, $Z = 13.75$, $P < .001$; and for robbery, $Sk = 1.78$, $Z = 19.40$, $P < .001$. The square root transformation that was applied produced more normal distributions: for theft, $Sk = -0.43$, $Z = -18.00$, $P < .001$; for burglary, $Sk = -0.38$, $Z = -14.11$, $P < .001$; and for robbery, $Sk = 0.41$, $Z = 9.67$, $P < .001$.

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