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Weekend effects on binge drinking and homicide: the social connection between alcohol and violence in Russia

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Abstract

Aims and design—This study employs unique newly available Russian mortality data to examine the social connection between binge drinking and homicide in the country.

Setting, participants and measurements—All death certificates of those aged 20–64 years in the Udmurt Republic, Russia, were analyzed according to day and cause of death for the years 1994–98. Deaths due to alcohol poisoning were used as a proxy for binge drinking.

Findings—There was a high bivariate correlation ($r = 0.75$) between the daily distribution of deaths due to alcohol and homicide. The number of alcohol deaths was significantly higher on Saturdays and Sundays (presumably as a result of drinking on Friday and Saturday nights) and the number of homicide deaths was significantly higher on Fridays and Saturdays.

Conclusions—The levels of alcohol consumption and homicide in Russia are among the highest in the world, and there is mounting evidence that the two are related. Binge drinking, preference for distilled spirits and a high social tolerance for heavy drinking may act as social and cultural contextual factors that might increase the risk of violent outcomes. The high correspondence between the daily distribution of alcohol and homicide deaths provides indirect evidence for the social connection between them. While these findings do not represent a causal connection, when placed in the context of the growing literature on this topic they provide further support of an association between alcohol consumption and homicide rates in Russia and preliminary evidence for the intermediate role in this relationship played by social context.

Keywords

Alcohol; binge drinking; homicide; Russia; violence

INTRODUCTION

The perennially high Russian homicide rate increased dramatically during and after the dissolution of the USSR, more than tripling between 1988 and 1994. The homicide victimization rate of nearly 30 per 100 000 in 2002 trailed only Columbia and South Africa and was nearly five times higher than in the United States (long considered the most violent industrialized nation in the world) and 15–20 times greater than rates in most European nations (Pridemore 2003). It is clear that violent death played an important role in the Russian mortality crisis and in decreasing life expectancy during the 1990s, especially for males (Shkolnikov & Meslé 1996; Notzon et al. 1998). The level of alcohol consumption in Russia is also among the highest in the world, with an annual consumption rate estimated to be nearly 15 l of alcohol per person (Nemtsov 2000; Treml 1997). By comparison, the highest rate of consumption in

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Europe in 2000 was around 12 l per person per annum in Luxembourg, with rates of a little less than 10 and 7 l, respectively, in the European Union and the United States (World Advertising Research Center 2002). Although not as extreme, the same trends as homicide were found with alcohol consumption over the past decade and a half (see Nemtsov 2003, who employs consumption estimates from several different sources), and alcohol is estimated currently to play a direct or indirect role in as many as one-third of all deaths in the country (Nemtsov 2002).

Many scholars argue that alcohol consumption played an important role in the variation of Russian mortality rates during the last two decades (Leon et al. 1997; Shkolnikov et al. 2001) and some suggest that it also contributes to the country's high homicide rate (Shkolnikov et al. 1997; Gavrilova et al. 2000; Pridemore 2002a). Nemtsov (1998), for example, reveals the reduction and subsequent increase of alcohol-related violent deaths during and after Gorbachev's anti-alcohol campaign, and a study by Chenet et al. (2001) of another former Soviet nation, Lithuania, points to the contribution of binge drinking to daily variations in mortality, including violence.

Not all societies with high levels of alcohol consumption exhibit high levels of violence, however, suggesting that (1) cultural and structural characteristics of a nation play a contextual role in any association between alcohol and homicide, and (2) the outcome of alcohol-related events may vary based on the characteristics of the event itself (Wells & Graham 2003). Unfortunately, careful studies of social factors, alcohol consumption and violent behavior in nations outside North America and Europe are rare, and studies of Russia are even less common because data are only recently available following decades of Soviet secrecy. However, recent research has shown a consistent and significant association between alcohol and violence in Russia and has suggested some possible social explanations for this relationship. Pridemore (2002a) showed a positive cross-sectional association between alcohol and homicide mortality in Russian regions during the mid-1990s, and while he employed data aggregated to the regional level, he argued that the social and contextual effects of what, how, and where Russians drink may be partially responsible for the association between alcohol and violence in the country.

For example, although beer and wine consumption is increasing, Russians still overwhelmingly prefer vodka. Binge drinking is also common, with nearly one-third of all men admitting to binge drinking at least once per month (Bobak et al. 1999), and there is also high social tolerance for heavy drinking in Russia. Further, as a result of the Soviet economic system, Russia has a less developed bar/pub culture than in Europe and the United States, probably resulting in more drinking occurring in private or semiprivate settings (e.g. homes, parks). The social tolerance for heavy drinking can result in lower self- and informal social control over drinking behavior, while drinking in private settings may result in fewer formal controls, such as a bar bouncer who might respond quickly to break up a fight, or unrelated onlookers or a bar manager who may call the police if a disturbance erupts. Thus, among the cultural and structural forces that may serve to link alcohol and violence in Russia may be the quicker and deeper intoxication resulting from binge drinking of vodka in settings that provide weak formal and informal social controls. Norstrom (1998) has shown, for example, that violent outcomes may vary by type of alcohol consumed, and Wells & Graham (2003) show that while drinking in general may not be related to violence at the individual level, the level of intoxication does appear to be associated with violent outcomes, as is drinking frequently and in greater amounts.

In the absence of observational or other direct data such as narrative accounts of violent events, other types of data may be utilized to indirectly test this hypothesis. For example, routine interpersonal activities of social groups would lead us to expect rates of binge drinking and thus violence to be higher on weekends and to expect daily variations in both to be correlated.

While not providing causal evidence, a positive finding would suggest that a more careful analysis of this relationship and of these hypotheses is warranted, while a non-significant finding might indicate that other avenues for the effect of alcohol on violence in Russia be explored.

DATA AND METHODOLOGY

The present study employs similar data and methods as Chenet et al. (2001). As with Chenet et al. (2001), alcohol poisoning deaths are employed here as a proxy for binge drinking. This category is probably overused in Russia, as it is also often employed to classify deaths due not only to acute poisoning but also to the underlying effects of chronic alcoholism (Blum & Monnier 1989; Shkolnikov & Meslé 1996). However, the combination of binge drinking of distilled spirits (i.e. vodka) and consumption of illegally produced alcohol (the quality of which is unregulated) and alcohol substitutes (e.g. perfume, shaving lotion and antifreeze) does result in a very high number of deaths due to true alcohol poisoning in Russia. In 2000, the Russian mortality rate due to alcohol poisoning was 27.5 per 100 000 population (Russian Ministry of Health 2003), which corresponds to about 40 000 deaths.

Death certificates of those aged 20–64 years in the Udmurt Republic are analyzed according to day and cause of death for the years 1994–98. These data were collected originally as part of a project examining the Russian mortality crisis of the 1990s (Shkolnikov & Chervyakov 2000; Chervyakov et al. 2002). Until 1999, when Russia began to migrate to the use of the International Classification of Diseases Codes (10th Revision), cause of death was recorded according to the Soviet classification scheme, with accidental alcohol poisoning coded as 163 and homicide as 174, which correspond to ICD-9 codes 860 and 960–978, respectively. Overall mortality data and violent mortality data from Russia have been the subject of considerable research following the breakup of the Soviet Union and the subsequent data availability, with scholars agreeing on their validity (Anderson & Silver 1997; Leon et al. 1997; Wasserman & Värnik 1998).

Recording practices probably alter our expectations of day of death. Homicide deaths that occur on Fridays and Saturdays are likely to be recorded on those days, because the time of death is usually relatively easy to calculate given the presence of witnesses and the response of police and medical professionals. On the other hand, the exact time of a death due to alcohol poisoning is less clear. Unlike homicides, there is usually no tangible event, witnesses to the actual death are unlikely, and the death is probably not discovered until the following morning [1]. Thus we would expect recorded deaths due to acute alcohol poisoning to be lagged one day and to be higher on Saturdays and Sundays, resulting mostly from drinking on Friday and Saturday nights.

The use of the Udmurt Republic is important for several reasons. First, it is a typical Russian industrial region. It is located in the western Urals about 1000 miles from Moscow and has a population of 1.6 million people, with ethnic Russians and Udmurts making up about 60% and 30% of the population, respectively. Secondly, it is one of the few regions in Russia that did not experience a disproportionate increase during the 1990s in the ‘violent death, cause unknown’ category, which has resulted in significant underenumeration of homicides throughout the nation [2]. Thirdly, while it is impossible to be sure that the Udmurt Republic is representative of the whole of Russia with respect to patterns of alcohol consumption, violence and any association between the two, overall mortality and life expectancy in the

[1]Qualitative data from a different project on homicide in the Udmurt Republic support this general description of the timing of drinking and homicide. For example, relative to non-drinking offenders, homicide offenders who were drinking at the time of the event were more likely to commit their acts on Fridays and Saturdays. Similarly, these data also show that while about 60% of all homicides in the Udmurt Republic occur between 6 p.m. and 6 a.m., 84% of homicides with a drinking offender occur during this period.

Republic are very close to that of Russia as a whole, and its age-standardized rate of deaths due to alcohol poisoning (28.5 per 100 000 population) and homicide (27.4) in 2000 were also close to those of Russia (27.5 and 25.3, respectively) as a whole (Russian Ministry of Health 2003). Finally, the region has also been the setting for previous studies of homicide (Chervyakov et al. 2002) and for in-depth detailed analysis of mortality trends (including violent mortality) during this time period (Shkolnikov & Chervyakov 2000).

RESULTS

Figure 1a-c shows the percentage of alcohol and homicide deaths more/less than expected by day of the week. Figure 1a is for all deaths and Fig. 1b,c shows this distribution for the summer (May–October) and winter months (November–April), respectively. For the reasons discussed above, alcohol deaths are displayed in these figures one day earlier than they are recorded. Keeping this in mind, the initial correlation coefficient between daily distributions of homicide and alcohol deaths is 0.28, but when we move the alcohol deaths forward one day as discussed, $r = 0.75$. In each Figure we see that alcohol and homicide mortality are much higher than expected, usually between 10% and 20%, on Fridays and Saturdays.

Table 1 presents the proportional septadian distribution of deaths due to homicide and alcohol poisoning in 1994–98 in the Udmurt Republic. This distribution is provided for the entire year and for the warm and cold seasons. The number of homicides and alcohol poisoning deaths in the Udmurt Republic are relatively evenly distributed between the warm and cold seasons, with a slightly higher percentage of homicides occurring in the summer (52.8%) as opposed to winter and a slightly higher percentage of alcohol poisoning deaths occurring in winter (53.8%) compared to summer.

As expected, homicide and alcohol deaths are significantly higher on the weekend ($P < 0.01$ for all distributions except homicide in winter, $P = 0.082$). Both follow the expected daily distribution with respect to weekends. The largest proportion of homicides occur on Fridays (0.165) and Saturdays (0.164). Alcohol poisoning deaths peak on Saturdays (0.158) and Sundays (0.174), presumably from drinking initiated on Friday and Saturday evenings. The same general pattern holds true for overall deaths and for the warm and cold seasons.

DISCUSSION

Vodka represents about 75% of the estimated 15 l of alcohol per person consumed annually in Russia (Treml 1997; Nemtsov 2000), and surveys suggest that nearly one-third of Russian men binge drink at least once per month (Bobak et al. 1999). Although few studies have been undertaken until recently due to former Soviet secrecy concerning data on alcohol, mortality and other social problems, the high level of consumption in Russia is suspected of being linked to a host of social problems, including employee absenteeism and work-place injuries, divorce (Stack & Bankowski 1994), juvenile delinquency (Pridemore 2002b), generally unhealthy life-styles (Cockerham 2000), decreased life expectancy (Shkolnikov et al. 2001) and rates of spousal homicide that are at least 2.5 times higher than in the United States (Gondolf & Shestakov 1997).

Alcohol consumption was already high in Russia before the difficult transition years, and the analysis undertaken here does not refer to any changes during this time or make comparisons

[2]This disproportionate use of the ‘violent death, cause unknown’ category does not always mean that the cause is truly unknown, but likely is partially the result of local officials wishing to purposely undercount homicides when reporting to governmental superiors and to the public. That the Udmurt Republic has not had as strong a disproportionate increase makes the findings reported here more reliable, as it appears that more homicides in the Udmurt Republic are actually being classified correctly (i.e. we have more faith in the validity of the measure). This results in more precise homicide estimates and thus more reliable analyses.

to earlier years. Nevertheless, it is interesting to note that for many possible reasons consumption did increase in the years following the breakup of the Soviet Union. First, negative economic indicators such as unemployment, poverty and wage arrears spiked in the few years following the dissolution of the USSR, all at a time when the former social guarantees and safety net were disappearing. Secondly, repeated economic and political crises created chronic uncertainty and anomic conditions as the nation and its citizens struggled to shake off former norms and embrace new ones (many of which had been anathema only a few years earlier). This stress is reflected in mortality rates and declining life expectancy during this time, especially for men and especially from stress-related heart attacks and strokes (Leon & Shkolnikov 1998; Vlassov 1999; Reitan 2000). This is important to the topic of this paper, given a recent study of Russian adolescents that shows young male problem drinkers are more likely to use alcohol as a form of stress control (Koposov et al. 2002). Finally, all this occurred in the context of (1) deregulation of alcohol, which resulted in increased supplies and intensive advertising [Moskalewicz & Simpura 2000; Reitan 2000; see Kuo et al. (2003) for recent research in the United States that suggests an effect of marketing and alcohol availability on the level of binge drinking] and (2) alcohol prices that rose at a fraction of the pace of other goods and services, including food (Reitan 2000).

While the previous paragraph outlines some possible social and economic reasons for high rates of consumption in Russia, there are also Russia-specific social and cultural characteristics that might translate these high rates of consumption into high rates of violence. The findings presented in this study are consistent with those of Chenet et al. (1998) in Lithuania and Moscow, and indirectly support the hypotheses of the role of social context and formal and informal controls on drinking behavior and the ensuing impact on violence. While there are many reasons why alcohol and homicide may be related, social and cultural characteristics probably play an important contextual role. First, quicker and deeper intoxication results from binge drinking and distilled spirits, and this has been shown elsewhere to be associated with violent outcomes (Norstrom 1998). Further, recent research (Wells & Graham 2003) suggests that higher levels of intoxication (not just drinking by itself) and drinking more often and in greater amounts are risk factors for the escalation of violence. Secondly, there is high social tolerance for heavy drinking in Russian culture, perhaps creating less informal social control over drinking itself and any drunken behavior that follows [3]. Thirdly, the less-developed bar/pub scene in Russia may mean that Russians tend to drink more often in private or semiprivate settings, thereby leading to decreased formal social control by police or other security personnel. Finally, the ability of the Russian police to provide broad patrol coverage and to respond quickly to calls has been drastically reduced since funding has been cut sharply at the same time that crime rates have risen steeply. Given these conditions, an event that under different circumstances might end in a brief fight or an assault may become lethal if formal or informal social controls are not exercised.

Limitations

There are a few important limitations to keep in mind when interpreting these findings. First, these aggregate data do not provide information about individual homicides, and thus we do not know if offenders and/or victims were drinking at the time of the event. However, Nemtsov's (1998) study of individual death records shows that about 50% of accident and violence victims in Moscow are blood alcohol positive, Chervyakov et al.'s (2002) examination of death records and court transcripts reveals that at least two-thirds of all offenders and 40% of all victims in the Udmurt Republic were intoxicated at the time of offense, and official

[3]This violence may be expressed in other ways as well, including assaults, abuse and violence within the family (Gondolf & Shestakov 1997) and rape. Chervyakov et al. (2002) show that the changing nature of murder in Russia includes an increase in aggravating factors associated with murder, including rape, and the qualitative data (i.e. narratives of homicide events) from their study reveal that most offenders in the Udmurt Republic who rape their victim before killing them are under the influence of alcohol.

Russian police data report that more than two-thirds of the 125 000 people arrested for homicide or attempted homicide between 1996 and 2000 were under the influence of alcohol at the time of the event (Russian Ministry of the Interior 2001).

A second limitation is the use of alcohol poisoning deaths as a proxy for binge drinking. Measuring alcohol consumption is notoriously difficult, and poor sales and tax data and the high levels of consumption of illegally produced and distributed alcohol make it even more difficult in Russia. Alcohol poisoning has emerged as one way to overcome this problem until more direct measures can be developed in Russia, and Shkolnikov et al. (2001) regard it as a good estimation of variation in excess drinking. Further, recording practices make it impossible to tell what proportion of these deaths are due to the effects of chronic alcoholism as opposed to actual acute poisoning. However, these two categories are not mutually exclusive and, more importantly, there is little reason to believe deaths due to chronic alcoholism would exhibit an uneven daily distribution or be any higher on weekends than weekdays. In other words, any deaths due to long-term exposure should be distributed evenly among the days of the week, and thus the results presented here should be considered conservative, as even daily distribution of non-binge alcohol deaths would result in underestimating any association between the alcohol poisoning category and homicide mortality.

A final important limitation is that the correlation between binge drinking and homicide mortality on weekends might be spurious, and that other social or contextual factors not controlled for here are responsible for the increase in both. This could be the case, because the risk of intoxication and of violence may be higher during this time as a result of normal routine activities and heightened social interaction. The results, for example, show slightly fewer homicides during the cold season relative to the warm season, when people spend more social time outdoors and at their dachas. It is this intermediate social context, however, that we believe to be important in the relationship between drinking and homicide. That is, the social setting provides a context for increased consumption that, when mixed with the underlying structural and cultural factors outlined above, increase the risk of a lethally violent outcome.

CONCLUSION

This paper examines the important link between alcohol consumption and violent crime. We see that both binge drinking and homicide mortality in Russia are higher on weekends, when the intermediate context of socializing is more likely, thus revealing indirect evidence for a social connection between the two and illustrating the consequences of reduced societal controls on consumption and the negative behavior that may follow.

Studies employing individual- and aggregate-level data have established that both individual mortality (Nemtsov 2003, 1998) and cross-sectional homicide rates (Pridemore 2002a) covary with alcohol consumption in Russia. The present study can be seen as an initial step toward explaining why these relationships exist and the contextual pathways through which alcohol might influence violence in Russia. While not directly examining specific social characteristics, patterns of interpersonal interaction together with the results presented here concerning the relationship between daily patterns of heavy drinking and lethal violence suggest that further and more careful research in this direction is warranted.

If further research confirms these initial findings, there would be important public health implications. Concrete measures can be taken to decrease binge drinking. In light of the general association revealed here, the more specific evidence of the rapid decline in the mean age of Russian homicide victims and offenders shown elsewhere (Chervyakov et al. 2002), and data that show that young male problem drinkers in Russia use alcohol as a form of stress control (Koposov et al. 2002), restricting sales to minors, especially of hard alcohol such as vodka, should be a simple first step. This is especially true given the current ready supply of alcohol

available to young people in the country. Further, advertising and nearly around-the-clock availability of alcohol became common in the years following the dissolution of the USSR as foreign and domestic companies fought for market share of a suddenly available and very large market. Restrictions on the timing, placement and target audience of alcohol advertising, as well as on alcohol availability and outlets, are further considerations. Given the initial findings presented here, reducing availability might begin with enforcement of closing times (or at least halting alcohol sales at a specific time) on stores that sell alcohol around the clock and on the omnipresent kiosks, especially on weekends.

The importance of these findings is not limited to Russia. There are many potential avenues, from physiological to sociological, through which alcohol might lead to violence. At the structural level, research shows that there is not always a positive relationship between aggregate levels of alcohol consumption and rates of homicide. Evidence from Russia and elsewhere suggests that social forces may be an important aspect and that we must look more closely at social context and type of drinking if we are to understand better the association between alcohol and violence (Norstrom 1998; Wells & Graham 2003). These initial findings should encourage continued research on this topic, especially on the intervening role played by social, cultural and situational characteristics.

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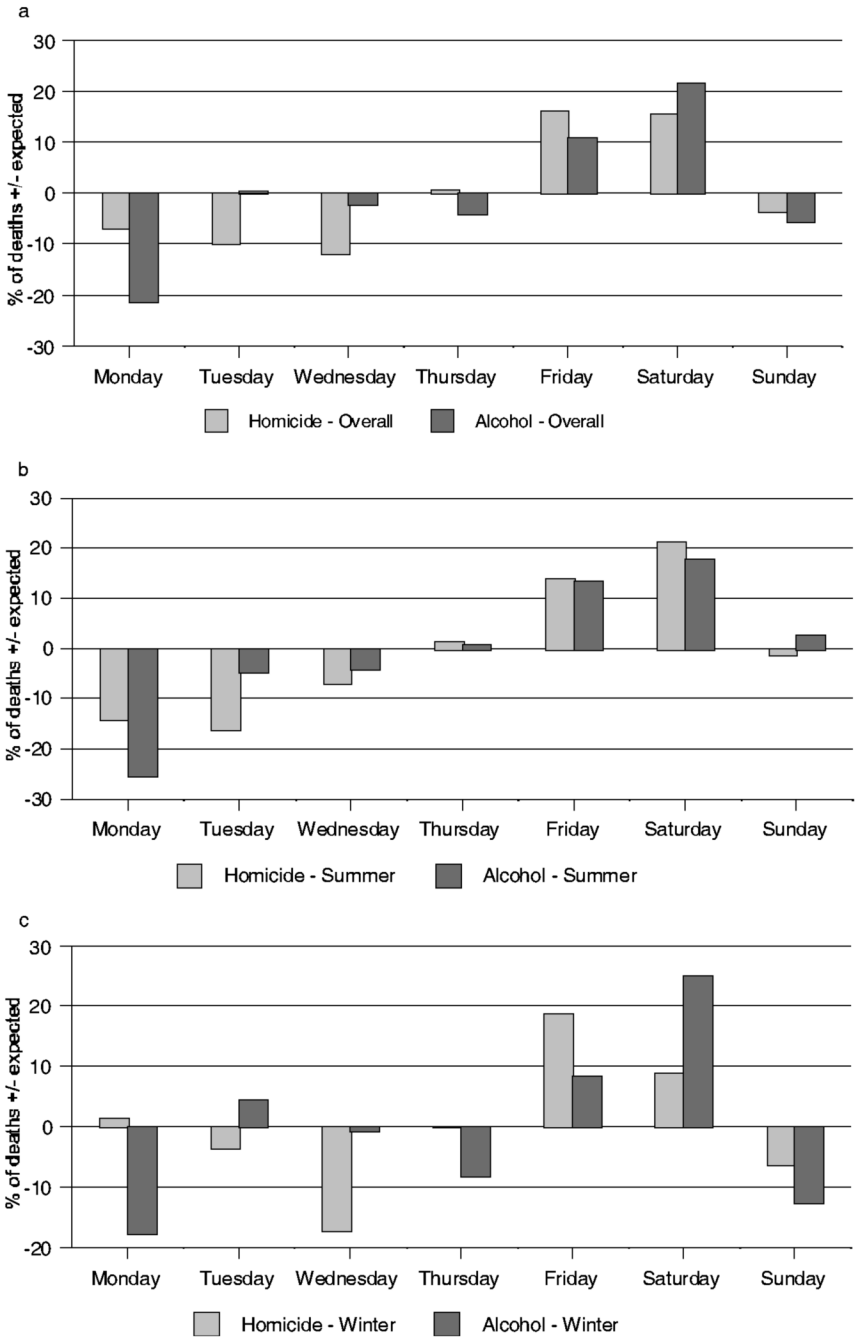

Figure 1.

(a) Percentage of alcohol poisoning and homicide deaths more or less than expected by day of week, Udmurt Republic 1994–98. (b) Percentage of alcohol poisoning and homicide deaths more or less than expected by day of week during summer months (May–October), Udmurt Republic 1994–98. (c) Percentage of alcohol poisoning and homicide deaths more or less than expected by day of week during winter months (November–April), Udmurt Republic 1994–98. As discussed in the Data and methodology section, alcohol poisoning deaths in these figures have been shifted forward one day

Table 1

Proportional distribution of homicide mortality and alcohol poisoning by day of week, 1994–98.

	All		Warm season (May–October)		Cold season (November–April)	
	Homicide	**Alcohol poisoning**	**Homicide**	**Alcohol poisoning**	**Homicide**	**Alcohol poisoning**
Monday	0.132	0.135	0.122	0.147	0.143	0.125
Tuesday	0.128	0.113	0.120	0.107	0.136	0.118
Wednesday	0.125	0.143	0.133	0.136	0.117	0.150
Thursday	0.143	0.140	0.144	0.137	0.141	0.142
Friday	0.165	0.137	0.162	0.144	0.167	0.132
Saturday	0.164	0.158	0.173	0.162	0.154	0.155
Sunday	0.137	0.174	0.141	0.168	0.132	0.179
Total	2180	2289	1152	1058	1028	1231
χ^2 (d.f. = 6)	$P < 0.001$	$P < 0.001$	$P = 0.004$	$P = 0.007$	$P = 0.082$	$P = 0.001$

Proportions do not sum to exactly 1.0 in all columns due to rounding and to the exclusion of a very small number of cases in which the day of death was unknown.