Intra-monthly distribution of Suicides in Denmark 1970-1998

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Fluctuations in suicide rates have been observed in many countries. The aim of the present study was to investigate the intra-monthly distribution of suicides in Denmark between 1970 and 1998 and examine whether major holidays exert any direct influence on the distribution. Danish data on suicidal deaths 1970-1998 (n = 35.679) were analysed statistically. The intra-monthly distribution was significant (χ^2-test for equal distribution, p = 0.000006) and exhibited two distinct patterns: a peak around the 5th, 6th, and 7th day of the month and a steady decline during the month.

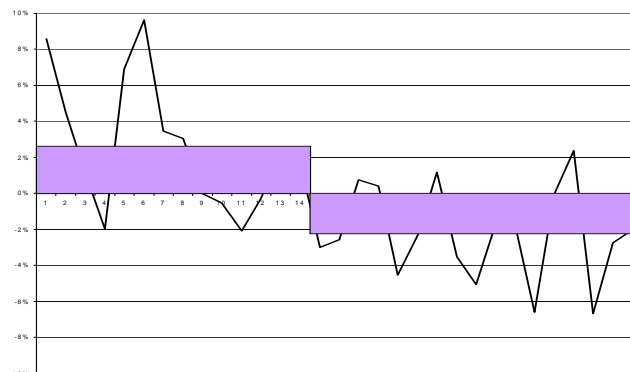Figure 1. Intra-monthly distribution of suicide: January-December

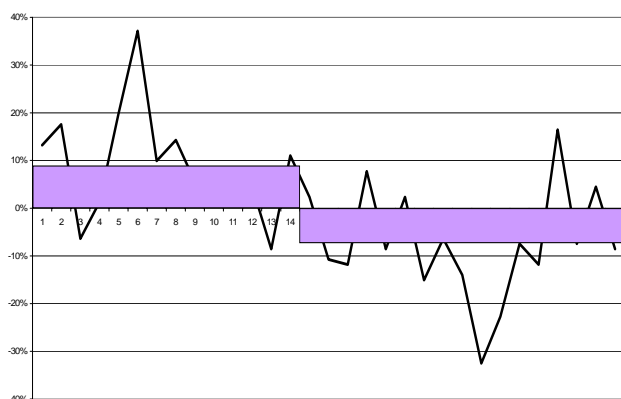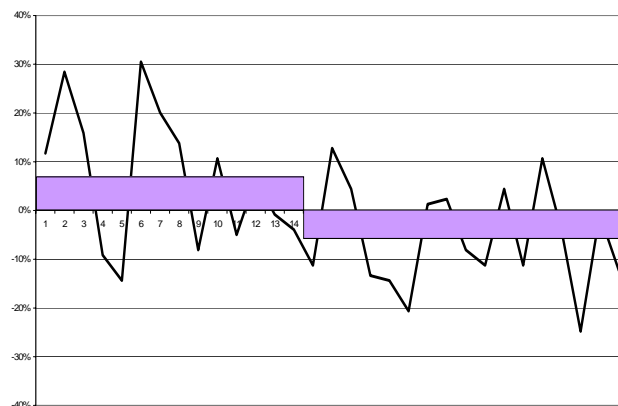Figure 2. Intra-monthly distribution of suicide: December

Figure 3. Intra-monthly distribution of suicide: January

The first 14 days in each month were compared to the rest of the month. A general pattern of increased suicide rates was found in the first half of a month. This pattern was not universal, however (i.e. apparent throughout the year), but was particularly marked in December (p = 0.000018) and January (p = 0.000677), likely due to the effects of Christmas and New Year. The interpretation of increased suicide rates in the beginning of December and January as an effect of Christmas and New Year was strengthened by a day-by-day analysis of the period from December 15th to January 14th. This showed very clearly that there is a major decrease in suicide risk from December 15th to December 31st (p<0.05, one-tailed for Dec. 23rd to Dec. 26th) compared to the first part of the month. Additionally, there was a major increase in suicide risk from January 1st to January the 14th (p<0.05, one-tailed for January 1st to January 3rd and January 6th to January 8th).

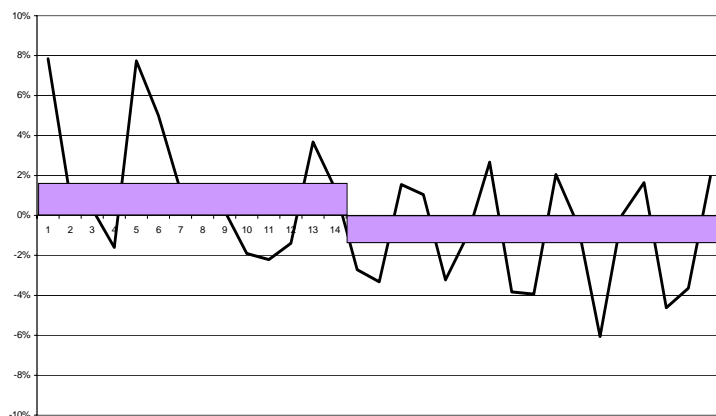Figure 4. Intra-monthly distribution of suicide: February-November

Figure 2 and 3 indicate that holidays probably have an effect on suicidal behaviour. Especially Christmas appears to possess a prophylactic effect in regard to suicide. The impact of Christmas on Christian societies is an apparent reduction in the suicide rate a few days before and during the Christmas holidays. An obvious sociological explanation for the December nadir is that the increased level of emotional and social support this time a year may act as a buffer in regard to suicidal behaviour. This protective effect persists for several days after Christmas. If December and January are excluded from the intra-monthly distribution of suicides (figure 4), the the pattern is less marked (p = 0.011255). This may indicate that the peak in the first half of the month is, at least in part, attributable to the effects of Christmas and New Year. The identification of rhythmic patterns in suicidal behaviour may have implications for the understanding of the aetiology of suicide and for the planning and staffing of support services.