Review Article

Suicide rates in Maltese Islands (1955-2009) analysed in European context using WHO data

Samuli Helema, Jari Holopainen, Timo Partonen

Abstract

Aim: To calculate the suicide rates (for males and females) in Malta and other European countries with long series of suicide mortality as recorded in the WHO (World Health Organization) database, and compare the Maltese suicide rates with European rates.

Method: Suicide rates were computed from the WHO database as rates (suicides per 100,000 persons) using the reported suicide and population counts in Malta and ten other European countries for a common period 1955-2009. Suicide rates were age standardized following the WHO recommendations. These calculations were carried out separately for both sexes.

Results: Compared to other European counties, the suicide rates (both male and female) in Malta have remained at considerably low level as calculated over the full period. Maltese suicide rates have however multiplied since the 1980s. European data exhibit clear decrease in suicide rates towards the present consistently in several countries. Malta is the only European country showing its highest suicide rates during the 2000s.

Conclusions: Although the suicide rates in Malta remain at considerably low level, they have exhibited a notable increase towards the present, whereas the European suicide rates are in decline. Becoming aware of this fact and the issue may help in building a suicide prevention programme to mitigate the situation.

Samuli Helama Ph.D.*
Finnish Forest Research Institute
Northern Unit
P.O. Box 16
96301 Rovaniemi
Finland
Samuli.helama@metla.fi

Jari Holopainen Ph.D.
Department of Geosciences and Geography
University of Helsinki
Finland

Timo Partonen M.D.
National Institute of Health and Welfare
Helsinki
Finland

**Corresponding Author*

Keywords

Suicide, Mortality, Europe, Database, World Health Organization

Introduction

Suicide is one of the major causes of death world-wide.[1] Suicide rate is not, however, constant in a given region, but varies with time. Another characteristic of suicide mortality is that males are more prone to commit suicide than females. Apart from temporal variations, the suicide rates differ between regions and generally exhibit diverging levels in different countries.[1-3] Several studies have aimed at revealing the temporal post-war trends and levels of suicides in different European countries.[1-2, 4-6] A feature common to these studies is the peak in European suicide mortality in the 1980s, with declining rates thereafter[1,5], possibly occurring on a global scale apparent for the last 20 years.[6] Despite this decline, the studies conclude that suicide remains a significant public health problem.

In comparison to other European countries, the suicide rates in southern Europe are low and tend to be lowest in Mediterranean countries.[2,5] Notably, the suicide rates have remained at very low levels in Malta.[2] However, the most recent international comparisons have not included the mortality figures of Malta in their estimations.[1, 4-6]

In this study, we have performed a comparison of suicide rates in 11 European countries including Malta. These analyses were to depict the temporal trends of suicide mortality in these counties, with emphasis on the development of Maltese mortality, and compare the trends in Malta with those of other countries. The figures were constructed from the updated database of World Health Organization (WHO) and age standardized for neutral comparisons between the countries. The main aim of this study was to evaluate the development of suicide rates in Malta and their recent changes in the European context.

Method

Mortality and population data of Austria, Finland, France, Hungary, Iceland, Ireland, Malta, Netherlands, Norway, Sweden, and Switzerland, covered the common period (1955-2009) as derived[7] from the WHO mortality database. Typically, the mortality and population data

was available for age groups of 5-10, 11-15 …81-85 years, and these age groups were used in further calculations. Suicide counts of these age groups and the population figures were adopted from the database, and transformed into sex-dependent suicide rates (suicide deaths per 100,000 persons) for each calendar year. Moreover, the suicide rates were age standardized following the WHO recommendations.[8] Following previous suicide comparisons[1], the suicide rates were averaged for pentads (1955-1959, 1960-1964 … 2005-2009).

In this study, we aimed to reveal the suicide rates in Malta, and place them in the context of European suicide mortality, whereas pan-European comparison of suicide rates will be presented elsewhere. We have previously compared the development of Finnish suicide rates with the corresponding rates in other European countries, but that analysis[7] did not focus on suicide rates of any other particular country. In contrast, the temporal development of suicide rates in Malta were compared here to the corresponding rates available in the abovementioned 11 countries.

Results

Suicide rates in 11 European counties, including Malta, exhibited temporal variations through the study period (Fig. 1). In general, the suicide mortality appeared to rise from the 1950s until the 1980s, after which several counties exhibited a decline towards the 2000s. For males, this pattern of change was confirmed for all studied countries except Finland, Ireland, and Malta, showing their highest suicide rates over the following decades (Fig. 1a).

A similar pattern was evident for females. That is, the suicides rates ascended towards their peak values in the 1980s, and declined thereafter, except in Finland, and Malta, where the peak values occurred later. For both sexes, the suicide rates reached their maximum in Finland during the pentad 1990-1994. In Malta, the highest male and female suicide rates were obtained for 2005-2009 and 2000-2004, respectively (Fig. 1b). Comparison between the studied countries (Fig. 1) showed that the suicide rates were clearly at their lowest levels in Malta, this observation being sex-independent. For females, no suicides were registered in Malta during the periods 1955-1959 and 1970-1979.

For males, the long-term trend in suicide rates, depicting the change in suicidal mortality since 1955, rose in only four counties, including Ireland, Netherlands, Norway, and Malta (Fig. 2a). By contrast, the suicide rates in the 2000s increased only in Malta (Fig. 2b).

For females, the long-term trends in suicide rates rose only in Ireland, Norway, and Malta (Fig. 2c). In fact, Ireland and Norway showed rising suicidal mortality also in the 2000s, as depicted by the short-term change in suicide rates, in addition to Sweden. Overall, the recent (i.e. short-term) changes in suicide mortality were relatively subtle, in comparison to the post-war change (1955-2009), as evident for both sexes and for all studied counties.

Figure 1*: Temporal variations in suicide rates as computed for pentads over the study period (1955-2009) for males (a) and females (b) in Malta (open circles) and ten other European countries (filled symbols).*

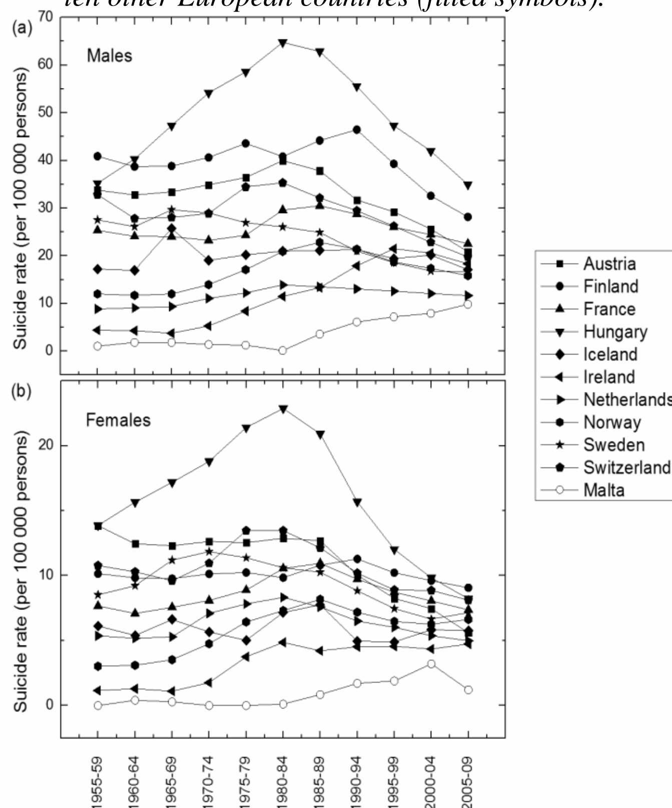
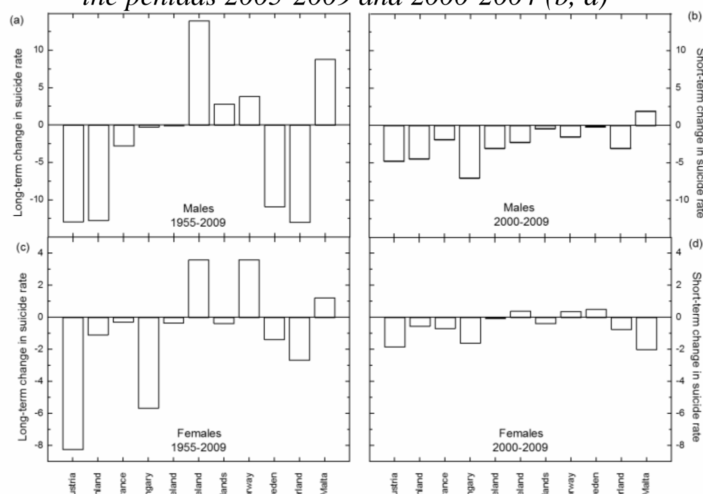


Figure 2*: Change in suicide rates (corresponding deaths per 100 000 persons) computed as long-term trend using the difference between the rates during the pentads 2005-2009 and 1955-1959 (a, c) and as short-term trend using the difference between the rates during the pentads 2005-2009 and 2000-2004 (b, d)*



Considerable changes were observed for Malta also when comparing the suicide rates from the early 1980s (here, 1980-1984) until the last pentad (2005-2009). During the former period, the male and female suicide rates remained at level of 0.134 and 0.111 (suicide deaths per 100,000 persons), respectively, whereas during the latter period the rates of 9.845 and 1.208 were obtained.

Discussion

Suicide is a complex problem receiving world-wide attention.[3] Suicide rates vary between countries, including Europe. The fact that the suicide rates were in Malta clearly at the lowest level among the studied counties followed the geographical picture, whereby the rates are higher in northern countries, in general, than in southern European countries.[3] Moreover, the Mediterranean countries have generally lower suicidal mortality than the other countries in Europe.[2,5] In fact, no female suicides had been registered for Malta in the WHO database over three pentads in the 1950s and 1970s.

Although the suicide rates vary between countries, their temporal trends may indeed show similarities. The decadal and longer trends deciphered in this study followed the previously detected a rise in suicidal mortality towards the 1980s, common to several European countries, whereas the subsequent decline in suicide rates occurred towards the 1990s and 2000s.[1,5-6] In this respect, Malta was no exception, but the suicide rates ascended during the 1980s (Fig. 1). However, it appeared that the country did not experience the decline in suicide rates during the 1990s and 2000s, unlike several other European countries. On the contrary, the overall low level of suicides in Malta were contrasted by the increase in suicide rates since those years, especially in the case of males (Figs 2a, b).

As previously alluded to, a feature common to Malta and Finland was that their highest suicidal mortalities were not observed in the 1980s but during the following decades. In Finland, the high level of suicide rates during 1980s evoked a parliamentary committee on suicide, and a suicide prevention program was initiated by a nation-wide research (1986–1991) and implementation phases (1992–1996).[9] At the end of the research phase, the national suicide prevention target and action strategy was published and distributed throughout Finland.[10]

Corresponding combination of suicide research and prevention was the first nation-wide effort of its kind.[11] In Finland, the post-programme suicide rate of 24.3 over the period 1991-2005 is contrasted by the predicted 32.6 (suicide deaths per 100,000 persons).[12] In Malta, the suicide rates of males and females were seventy and nine times higher during the most recent pentad (2005-2009) than they were in 1980-1984. Considerations presented here imply that becoming aware of the suicidal behaviour at national level may help at building a suicide programme to mitigate the situation.

Acknowledgements

We acknowledge the reviewers of this work for their advice and support. This study was supported by the Academy of Finland, and the foundation of Koneen Säätiö (Finland).

References

1. Levi F, La Vecchia C, Lucchini F, Negri E, Saxena S, Maulik PK, Saraceno B. Trends in mortality from suicide, 1965-99. Acta Psychiatr Scand 2003;108(5):341-9.
2. La Vecchia C, Lucchini F, Levi F, Negri E. Trends in suicide mortality in Europe, 1955-1989. Soz Präventivmed 1994;38(6):379-97.
3. Hawton K, van Heeringen K. Suicide. Lancet 2009;373(9672):1372-81.
4. Bertolote JM, Fleischmann A. A global perspective in the epidemiology of suicide. Suicidologi 2002;7(2):6-8.
5. Chishti P, Stone DH, Corcoran P, Williamson E, Petridou E. Suicide mortality in the European Union. Eur J Public Health 2003;13(2):108-14.
6. Bertolote JM, De Leo, D. Global Suicide Mortality Rates – A Light at the End of the Tunnel? Crisis 2012;33(5):249-53.
7. Holopainen J, Helama S, Partonen T. Finnish suicide mortality from 1950 to 2009 in an European comparison. Duodecim 2014;130(15): 1536-44.
8. Ahmad OB, Boschi-Pinto C, Lopez AD, Murray CJL, Lozano R, Inoue M. Age standardization of rates: a new WHO standard. GPE Discussion Paper Series: No.31. Geneva; WHO, 2001.
9. Lönnqvist J. Suicide prevention in Finland. In: Wasserman D, Wasserman C, ed. Oxford textbook of suicidology and suicide prevention. A global perspective. Oxford: Oxford University Press, 2009; 793-5.
10. Upanne M, Hakanen J, Rautava M. Can suicide be prevented? The suicide project in Finland 1992–1996: Goals, implementation and evaluation. STAKES National Research and Development Centre for Welfare and Health. Helsinki: Gummerus Printing; 1999.
11. Wilson J. Finland pioneers suicide prevention. Ann Intern Med 2004;140(10):853-6.
12. Helama S, Holopainen J, Partonen T. Temperature-associated suicide mortality: contrasting roles of climatic warming and the suicide prevention program in Finland. Environ Health Prev Med 2013;18(5):349-55.