Occupational injuries in Greece (1938-1955): History of medicine and descriptive epidemiology

Incidenti sul lavoro in Grecia (1938-1955): epidemiologia descrittiva e storia della medicina

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Abstract

Aim: to describe the longitudinal trends in the rates of total and fatal occupational accidents in Greece during 1938-1955.
Material and methods: information on occupational injuries have been provided from the yearly reports of the Organization of Social Insurances (1938-1955) and on population data from the tables of National Statistic Agency. Bio-statistical analysis was performed by the use of SPSS software and StatCalc of Epi Info.
Results: the evolution of the longitudinal trend of occupational accidents has revealed a biphasic character, with a decreasing trend during 1938-1945 and an increasing trend during 1946-1955. The phenomenon was obvious in both sexes and in all age groups. On the contrary fatal occupational injuries increased across the period 1938-1945 and subsequently decreased. These temporal trends can be interpreted on the light of the important reduction in the level of economic activity during the second world war and the subsequent gradual recovery in the post war period.
Conclusion: the biphasic characteristics of the occupational accidents longitudinal trend seems to be influenced by historical factors. M important lessons were learnt from the period of war. The decrease of the rate of total occupational accidents does not necessary reflects a satisactory level of safety at work. The level of the economic activity, the efficiency of the registration and prevention agencies play a role. In addition, the rate of fatal injuries has a critical role in benchmarking national occupational health performance.
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Key words: occupational injuries, descriptive epidemiology, history of medicine

Introduction

Occupational injuries represent a considerable part of the injury burden for the society, affecting people in the most productive years of their lives.[1] Occupational and all other types of injuries are health problems.[2] Since the 30s and 40s, the public health community has realized that injuries could be addressed using the same conceptual contexts and analytic tools which were being used for the control of infectious and chronic diseases.[3] In 1937 Godfrey has proposed the application of public health approach to injury research and prevention.[4]
Data collection and analysis are essential components of this process. Compulsory accident insurance has contributed to the initiation and maintenance of regular statistics for occupational injuries.[5]
In Greece, sporadic registration of occupational injuries has taken place since the 20s in various productive sectors and especially in metallurgical enterprises.[6] The activation of social insurance in 1938 has stimulated a more systematic registration and statistical elaboration.[7] Further, in 1941 a ministerial decision has introduced a compulsory organization of social insurance in order to keep detailed statistical data.[8] This opened a new page in the history of the registration of occupational injuries in Greece.
The historical period 1938-1955 includes the Greek- Italian war of 1940-1941, the Greek- German war and the occupation of Greece (1941-1944), the civil war (1946-1949) and the period of reconstruction (after 1947). Up to now, occupational injuries in Greece during 1938-1955 have not been investigated. Thus, an aim of the present study is to explore the temporal trends of occupational injuries in Greece during that period, through the methods of descriptive epidemiology. We also intend to advance some interpretations on the possible association of such trends with socio-economic factors.

Material and methods

Data on occupational injuries during 1938-1955 have been obtained from the reports of the Organization of Social Insurance and from the statistics of occupational injuries of the Greek Institute of Occupational Safety and Health. According to the definition provided by the Royal Degree of 1920, a labor accident is a violent event which hits a worker during (or as a consequence of) the performance of his/her duties and causes a disability to work lasting more than 4 days.[9] Population data have been obtained from the statistical yearbook of Greece. Data about socioeconomic characteristics have been received from historical sources of the study period.
Annual rates of total and fatal occupational injuries per 100.000 population were estimated. Total population was used as the

denominator rather than working population because the latter was not available for the whole investigated period. Sex- and age specific rates were also calculated as well as the relative frequencies of injuries by type, body part and season. We also studied data about the geographical distribution and the sector of economic activity. Three-year moving averages were used in order to smooth trends. Statistical analyses were performed useing the SPSS software and the epidemiological program Stat-Calc of Epi Info. For the registration of the data and for the production of graphs, spreadsheet Excel has been used.

Results

Figure 1 illustrates the longitudinal trend of the incidence rates for the period 1938-1955. A decline during 1940-1945 and the increase after 1946 are obvious. -1955: the absolute numbers of registered occupational injuries in 1938, 1943 and 1955 were 28.864, 9.619 and 31.825 respectively. The reduction of labor accidents in the war era (with the exception of the area of Piraeus port) is partially reflected in the decrease of the proportion of medical visits due to labor accidents: in 1941, 1942, 1943 and 1944: these were respectively: 12%, 7%, 5% and 3%). In Athens, the mean number of days in hospitals days due to occupational injury for Athens has monotonically increased from 33 days in 1941 to 45 days in, 1942: to 56 days in 943, and 66 days in 1944). The biphasic trend is well depicted in figure 1.

Figure 2 shows the distribution of occupational injuries by sex which indicates a a higher incidence in males than in females over the whole study period. As shown in figure 3, it was the highest for the age group 15-65. As for material causes, the use of tools and falls were in a prominent position, whereas analyses for the body segment being injured found a prominent role of the upper and lower limbs. Injuries from pricking or cutting instruments, crushes and foreign bodies in the eye were the most frequent type of occupational injury. The longitudinal trend in seasonality of occupational accidents has been presented in figure 4.

It is remarkable the after-war trend for convergence of the curves by time (summer/autumn, winter/spring) despite the fact that the prominent pattern of seasonality of occupational injuries (increase of the % percentage in summer and reduce in winter) has been reconfirmed.

Figure 5 illustrates the increase of fatal occupational injuries during 1940-1944 and the decrease during 1945-1955.

Both the trend towards a decreased occurrence of occupational injuries during 1940-1945 and the subsequent increase were observed in all sectors of the economy (primary, secondary, tertiary). There are no official statistics on industrial and agricultural production during 1941-1944. It has been estimated that in 1945 the industrial production was 35% of the pre-war period:[10] this was followed by a significant recovery after the war.[11] There are not available data about employment rates during the war era.

Discussion

Data on the temporal evolution of occupational injuries during 1938-1955 are sparse and incomplete. In this paper we have tried to explore trends in occupational accidents in Greece during the same period. It clear that this trend is not monotonic.

Figure 1. Longitudinal trends of occupational accidents incidence per 100 000 inhabitants in Greece (1938-1955)

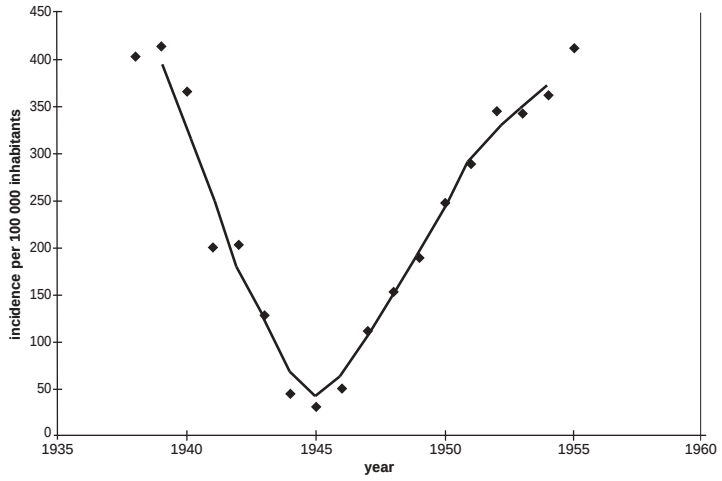
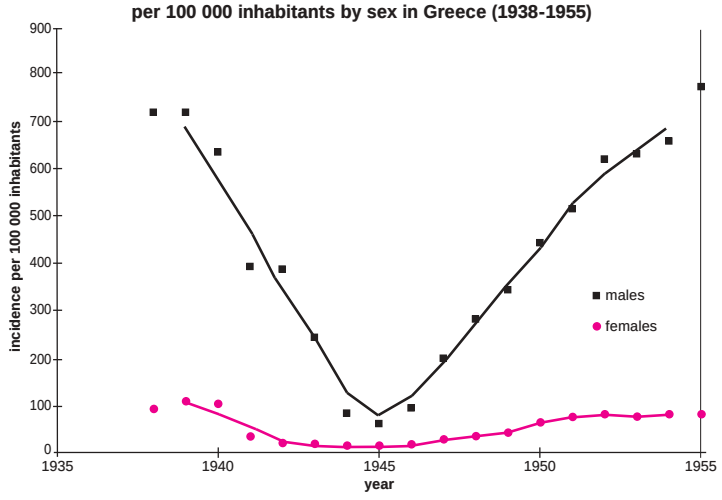


Figure 2. Longitudinal trend of occupational accidents incidence per 100 000 inhabitants by sex in Greece (1938-1955)



It is well known that socioeconomic factors and the fluctuations of national economy influence the frequency of occupational injuries.[12] War events upset all economic activities and especially industrial production.[13] In Greece, during the period of the second world war, a remarkable decrease of the absolute number of labor injuries has been recorded in all sectors of economic activities. The possible reasons of this phenomenon are the dislocation of the national productive base of Greece (which has lead to a substantial reduction of agricultural and industrial production) and the disfunction of the registration agencies during the war era. The fact that during the 40s the decrease was more obvious in males than in females reflects the fact that most Greek males in working age groups had been sent to the front.
An exception to the overall decrease occurred in 1942 for activities related to the excavation of minerals and, building stones and to construction. This is also reflected in the increase, in 1942, of the rate of occupational accidents in the industrial area of the Piraeus port which was under pressure by the German occupation authorities to be active.
The higher incidence of occupational injuries in males and in age and in age 15-64 is in full agreement with some studies.[14] The dramatic increase of fatal accidents during the second world war possibly reflects the intensification of working procedures with a low level of safety in the workplace. The association of the quality of labor relationships and occupational legislation with injury rates is well established.[15-16] An indication of poor quality of labor relationships during the occupation of Greece by the Germans troops was the legislative decree 1750-1942 according to which any employee of the public sector participating to a strike could be punished with the penalty of death.[17] After 1941, no new law or decree regarding work has been issued. Whereas this brought about a low level of safety at work, the absence of new legislation initiatives probably has deteriorated further the labor relationships. All the above factors have contributed to the increase of the fatal occupational injuries in a historical context characterized by the militarization of the economy. An evidence of the special historical conditions during the war in Greece were labor accidents in hard labor camps.

Figure 3. Longitudinal trends of occupational accidents incidence per 100 000 inhabitants by age group in Greece (1938-1955)

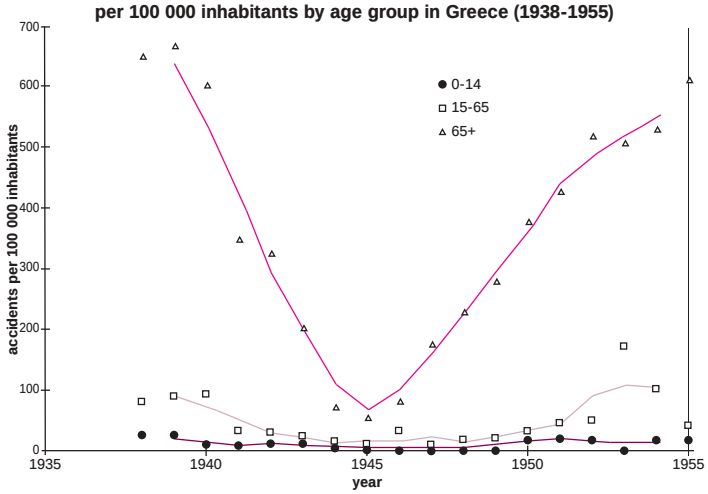
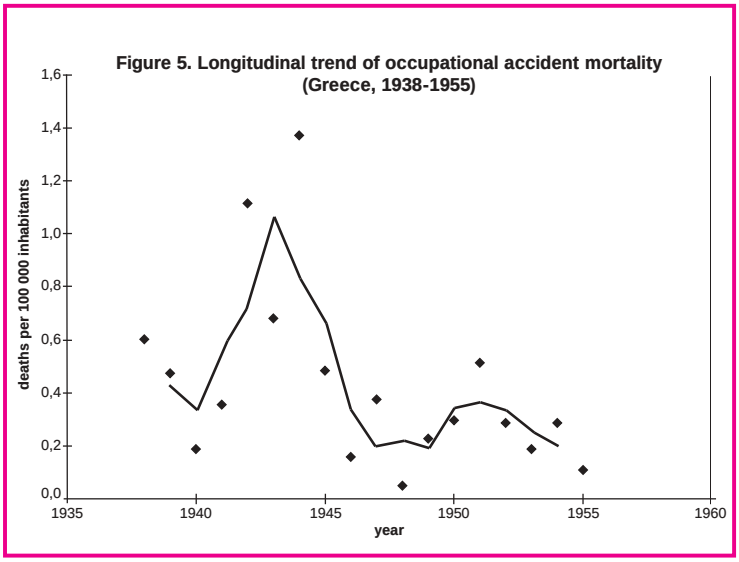


Figure 4. Longitudinal trend of seasonality of occupational accidents in Greece (1938-1955)

The period after the end of the second world war was characterized by reconstruction based on the Marshall plan. Cement, chemical, paper and textile industries developed in Greece over this period. Construction activities were the locomotive of the economic growth. In 1955, 58,5% of the total private investments were connected with the construction industry. The intervention of the state in the process of economic development was also important. The public sector invested in energy production, in telecommunications and in the construction of infrastructures (e.g. streets, ports).[18] The reawakening of the economic activities after 1945 was combined with a gradual increase of occupational accidents in all sectors of economic activity. A similar finding was reported in Italy for the period 1945-1955.[13] The increased number of registered occupational injuries in Greece after the war was also related to the growing insurance coverage of workers. Special features of the increasing trend of labor injuries in the reconstruction period were those occurring in the construc-

tion sector, in the chemical and textile industry, and in the production of machines. The high rates of crushes and falls possibly imply a connection with the development of the construction industry whereas the high rates of accidents caused by tools suggest a low level of mechanization in industrial and agricultural production despite the process of the economic development after 1945. As for seasonality, the converging trend after the war corresponds to a similar finding described for the period 1956-1994.[19] The reason for this finding remains unknown. The trend of fatal injuries (increase until 1944 followed by a sharp decrease) is in full agreement with a relatively recent Italian study:[20] it is probably a characteristic of the reconstruction era in spite of the socio-economic differences between Italy and Greece.



One of the major limitations of our study derives from to insufficiencies of the registration agencies and to the special conditions of the study period. For example, in the registration of fatal injuries, the absence of information on socio-demographic and on the economic branch were fatalities have occurred is remarkable. Another limiting factor is related to the special historical conditions in Greece after the civil war, which was characterized by a phenomenon of social exclusion. Many people were excluded from the economical and social life of the country because of their political beliefs: for them, finding official and legal work was difficult.[21] Consequently, the development of an informal sector of the economy possibly has led to the underegistration of occupational injuries (both non-fatal and fatal) during 1946-1955. Additionally the economic impact of the occupational accidents cannot be estimated because of the peculiar and unstable monetary aspects of that period.[22]

In spite of these limitations, we have attempted to throw light on the study of occupational accidents during a very difficult period of Greek history. Most important lessons were learnt from the period of war: the decrease of the rate of total occupational accidents does not necessary reflect a satisfactory level of safety at work. The level of the economic activity, the efficiency of the registration and prevention agencies and – last but not least – the rate of fatal injuries which has a critical role in benchmarking national occupational health performance must also be taken into consideration.[23]

Conflict of interest: none decleared

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