

Dynamics of suicidal frequency changes on the railways in Poland – an attempt of epidemiological analyzes

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Summary

Aim: The analysis presented in the article is the first study of suicide on railway tracks in Poland.

Methods: An epidemiological assessment was conducted, study type: case series, population – based with use of the data from the National Police Headquarters. The rates of railway suicides in Poland in the years 2007–2018 were compared to the overall number of suicides in Poland and in the Europe.

Results: In 2007–2018, the average share of deaths by railway suicide in the overall number of suicides committed in Poland amounted to 2.06%. Between the years: 1999–2018 there is a growing number of railway suicide attempts and railway suicide attempts without deaths. Since 2012, an increase of suicide attempts on railway tracks, along with a constant number of suicide deaths, has been observed. In 2017 – 2018, throwing oneself under a train to end one's life was the third most commonly chosen method in Poland. Although it accounted for only a small percentage of all methods of suicide, it was chosen relatively more often than in other European countries.

Conclusions: Poland belongs to a small group of European countries where the number of deaths by suicide has displayed an upward tendency in the course of 20 years. There is a growing number of unsuccessful railway suicide attempts. The index of deaths on railway tracks in Poland, was considerably higher than the average index for the EU.

Key words: suicide deaths; railway tracks; prevalence

1. Introduction

Despite the fact that suicidal acts on railway tracks and in railway infrastructure buildings globally account for a small percentage of all suicidal behaviors, this phenomenon is studied in many countries, and there are actions undertaken aimed at reducing it as much as possible. The results of studies conducted in selected countries in Europe and in the world show a great discrepancy between the share of railway deaths in the overall number of suicides. It is estimated that railway suicides account for 1 to 12% [1] of the overall number of suicides, and this percentage does not usually vary in the course of many years [2, 3]. The rate ranges from 10-14% of all suicides in the Netherlands, the country with the most used railway network in the world [2], to 0.71% of all suicides committed in Hong Kong in the years 1997–2007 [3]. The efficiency of railway suicides is estimated at between 43 – 94% of all attempts [2]. The high mortality is related to the specific nature of rail vehicle, its huge mass, long braking distance, and impossibility to change track when a threat becomes apparent. Apart from the effects of suicidal behavior on the health of many people, there are numerous organizational and economic consequences [1, 4].

In Poland, in the years: 1990-2000 the European Adjusted Standardized Death Rates per 100,000 inhabitants ranges from 10 – 15 persons [5]. In 2015 Poland was one of six countries in Europe with higher rates of suicide on the railways compared to the short and medium-term trends [6]. In 2016, with the death number at 116 persons, Poland was the 8th highest among European countries [7].

Suicide is one of the main cause of death on railway tracks in Poland, similarly to other EU countries. The analyzes conducted by the National Committee of Railway Accidents Analysis indicate that suicides on railway tracks constitute 70 % of all casualties of railway accidents in Poland (89% in the EU) [8]. According to the data gathered by the European Railway Agency (ERA) economic costs of railway suicide in the EU countries as well as in Norway and in Switzerland were in 2015 calculated at 7,1 billion €, including 270 million € of costs endured by railway [8]. Average economic costs of fatal railway accidents in 2012-2014 in Poland were almost 145,8 million €. Poland took the second place (ex aequo with France) among 28 EU countries and Norway [8].

Social-economic costs of suicides are high. They are endured both by the relatives of the victims as well as by train drivers, temporarily excluded from performing their job, persons bringing back the rail traffic, passengers of trains, rail police and the witnesses of the events. Some of the train drivers show strong symptoms of mental health issues (such as PTSD) [9]. It is believed that suicide death affects a large circle of people more directly or indirectly connected to the suicide person [10].

If we take a longer perspective the tendency will be evidently negative. Analysis of successful suicide attempts in the USA and in 25 European countries in 1990-2010 shows that the ADSR (European Adjusted Standardized Death Rate) in Poland rose by

7.9% (cf. Romania: +26.2%), Lithuania: +13.6% and Ireland: +4%) [6]. This tendency differs from the tendency observed in many other European countries, where the ADSR considerably decreased or continued at a low level. The changes in Poland stem from the considerable rise in the mortality rate among women (+13.8%), whereas in the case of men, the ADSR decreased by 21.4% in the course of 20 years. The number of suicides committed rose in 4 age groups: 15-24 (+16.4%), 35-54 (+29.5%), 55-74 (+65.7%) and 75+ (+60.6%). At the same time, the number of suicides committed by persons aged 25-34 dropped (-15.3%). In a 10-year period (2007-2018), the ADSR in Poland was at its highest in 2009 – 17.0 persons, and lowest in 2016 – 12.2 persons [11, pp. 221]. As for gender of the deceased, we can observe an over-representation of males (2016: 21.9/100,000) in relation to females (3.0/100,000). Also, more suicides are committed in the rural areas (2016: 15.5/100,000), compared to the number of suicides committed in the cities (2016: 10.0/100,000).

The date of 22 May 1842 is assumed to be the beginning of rail transport in the current territory of Poland [12]. The Polish railway network reached its peak length in 1980 when the Polish State Railways had 27,200 km of tracks. Since then, the railway lines have been gradually decreasing. In 2005-2016, Poland lost 5.5% of its railway tracks. However, at the same time the railway network was modernized: in 1991-2016, it gained 4,500 km of second tracks, instead of one-track transport in both directions. In 2016, with a railway network of 19,000 km, Poland was third in Europe, right after France (28,000 km) and Germany (38,500 km), and leaving behind such countries as Italy, the United Kingdom and Spain. Development of railway networks coincides with increase in train speed and intensity of railway traffic, including passenger traffic.

The aim of the article is to examine the phenomenon of suicide on railway tracks in Poland, its incidence, variability in time, and to compare it with the cases of other European countries. Until recently, railway suicides in Poland were not subjected detailed analysis both according to the frequency as well as places of occurrence, dynamics of change, and risk factors. The tendencies occurring in the EU countries indicate that with decreasing number of railway accidents on tracks, the rate of those caused by suicide attempts is increasing (on average by 2% annually) [8]. We suspect that a similar situation may be taking place in Poland. However, lack of sufficient studies does not allow to precisely estimate this phenomenon. The situation is not made better by the limitations in the ways of recording death events by two independent institutions: the State Commission on Rail Accident Investigation and the Police Headquarters (NPH). Since 2011, Poland has been a member of the project Relating to Suicides and Trespassing the Track in Prohibited Places gathering the National Investigation Body of the EU states, and since 2017, the National Police uses an improved form for recording suicide behaviors. As a result of lack of uniform system of recording, there is a risk of understating or overstating the records. In Poland, as is

many EU countries classification of fatalities on railway tracks is usually decided by Police forces. Only since recently, the forms used by the Police forces include numerous categories which help to characterize every suicide behavior, make comparisons according to frequency and place of occurrence, demographic data of the suicide, and to characterize his profile.

2. Materials and Methods

2.1. Sources of the data included in the analysis

The data which were used for the analysis come from one source: the National Police Headquarters. The data concerning suicides were collected and generated, till 2012, on the basis of the STP 10 form: "Report on suicide attempt" entered to the Police System of Crime Statistics "Temida" after verification conducted according to Article 308 of the Code of Criminal Proceedings or the preparatory proceedings. In 2013-2016, the data were collected through KSIP 10 form: "Registration of a report on a suicide attempt," and later – since 2017 – KSIP 10 form: "Report on suicidal attempt/ behavior" has been used. The data provided by the National Police Headquarter between 2013 and 2019 contain the following information: the place (province of Poland) of the suicide attempt, the place of suicide, age of the suicide, age groups, sex of the suicide, marital status, education, employment, state of consciousness (being under the influence of alcohol), information about health status, the manner of the suicide attempt. In the form, suicide attempts on railway tracks can be recorded in two places: 1. place of the attempt/suicide behavior – railway area/railway tracks, and 2. method of the suicide attempt/behavior – throwing oneself in front of a moving vehicle. Information presented in the article came from the category: place of suicide attempt/behavior – railway area/tracks. In order to compare the obtained data with the data coming from other countries, the author used the statistical information from the following database: European Union Open Data Portal – Eurostat, for the years 2007-2016.

2.2. The indexes used in the analysis

The following indexes were used in the statistical analysis of the data: 1. deaths per 100,000 inhabitants (European Adjusted Standardized Death Rate, ASDR), 2. normalized index taking into account the length of railway lines, 3. changes in the occurrence of railway suicides per 100,000 inhabitants in 2007-2018, and 4. changes in the occurrence of railway suicides per 100,000 inhabitants in 2007-2018, with consideration given to the length of the railway line. In order to investigate occurring tendencies, linear regression analysis was conducted for the data from 2007-2018. The PS IMAGO PRO Academic (SPSS) software was used to conduct the analyses. The statistical relevance was adopted at level $\alpha < 0.05$.

3. Results

3.1. The relative number of suicide attempts and suicide deaths on railway tracks in Poland in the last 19 years

Figure 1 presents the number of suicide attempts and suicide deaths on railway tracks in Poland in the last 19 years per 100,000 inhabitants. In 1999-2018, there was a total of 3,212 suicide attempts on railway tracks which resulted in the death of 2,204 people (with the average of 110 deaths per year). In the discussed period, effectiveness of the attempts was at the level of 72.67%.

3.2 The suicide attempts and deaths by suicide in Poland on the railway tracks in the years 1999 – 2018

Since 2013, an increase in the number of suicide attempts on railway tracks, with a constant number of suicide deaths, has been observed (Figure 2). While in 1999 the deaths resulting from attempted suicides were at 90%, in 2017 the number was 47.0%. However, the two compared years did not differ in terms of the absolute number of deaths by suicide on railway tracks, (in both years 126 cases of deaths by suicide were noted). Starting in 2003, there had been a steady decline in the number of railway suicides with the lowest value in 2006-2011 (the average number of suicides for those

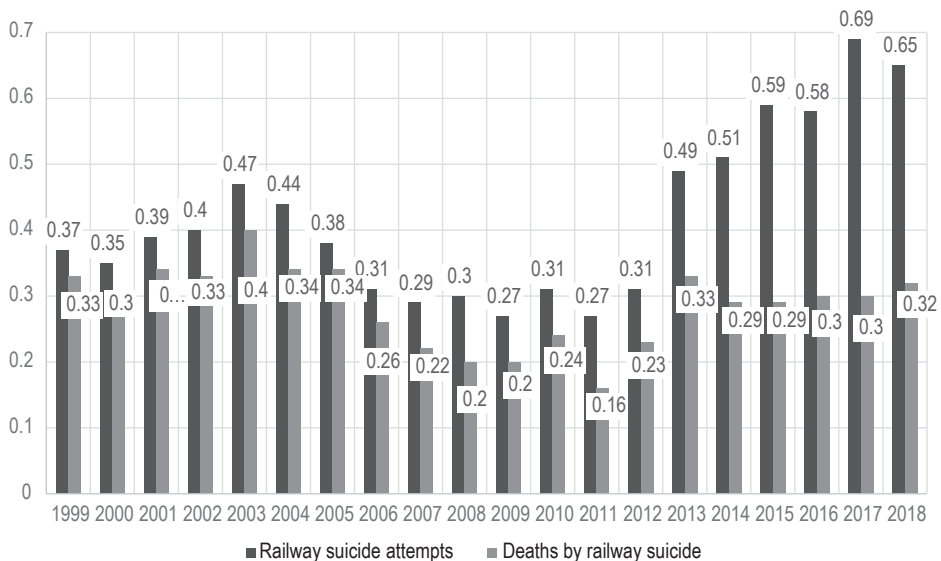


Figure 1. **Railway suicide attempts and deaths by railway suicide in Poland in 1999-2018 per 100,000 inhabitants.** Source: National Police Headquarters [13].

years is 82). Then, in 2012 – 2018, the number of deaths by railway suicides started to rise to the average level of 115 cases a year.

In terms of gender, suicide behavior on railway tracks observed in Poland since 2012, has been regularly increasing for males. This negative tendency corresponds to the increase in the overall number of suicides committed by males in 2006-2017, – which has clearly accelerated since 2012. The subsequent steps of the data analysis were started with estimation of the percentage of suicide deaths on railway tracks in relation to the overall number of suicide deaths in Poland in 1999-2018. The results of the analysis are shown in figure 3.

Further analysis was conducted for the years: 2007-2018, due to the lack of open access to data from earlier years. Then, the coefficient of suicide deaths on railway tracks was calculated for 100 thousand inhabitants in Poland and it was compared with similar coefficients coming from other European countries (figure 4 and figure 5).

Finally, a normalized coefficient of death on railway tracks was calculated, including all the events of suicide death and the length of railway tracks in Poland in 2007-2015 (figure 6). The formula: was used[15].

As for the number of rail suicides committed in 2008-2010 in 26 EU Member States per 1 km of railways, the highest ratio was recorded in the Netherlands, while Poland took 22nd position. [15]. The graph of the variability of this factor in EU countries and Poland in 2007-2015 years is presented in Figure 6.

3.3. Suicide death on railway tracks and in railway infrastructure buildings in Poland in comparison to other European Union member states

The increase of suicide attempts on railway tracks, observed since 2013, in the overall number of suicide attempts (suicide attempts and suicide deaths) requires broader studies. In 2011, the rules of issuing permissions for fire arms in Poland have been changed by law. The law limited the circle of people who could obtain a permission, excluding from this group those sentenced for crimes, also involuntary, against life and health, financial crimes and traffic crimes under the influence of alcohol. Meanwhile, the average absolute number of suicides with use of fire arms, increased twice after the introduction of the Law, in 2012 – 2016, and it was 60 persons/year in relation to the previous years before the change of law: 2007-2011 (33 persons/year). We can pose a hypothesis that the group of suicides attempting to end life at railway tracks included the persons who due to the mentioned changes lost their chance to have a fire arm and using them for suicide purposes. This fact may also explain the increase of the number of suicides on railway tracks in 2012-2018.

The cases of railway suicide has been accounting for a small portion of the overall number of suicides committed in Poland (Figure 3). In 1999-2018, the average share of deaths by railway suicide in the overall number of suicides committed in Poland amounted to 2.30%. The index took the sinusoidal form and ranged between 3.30 –

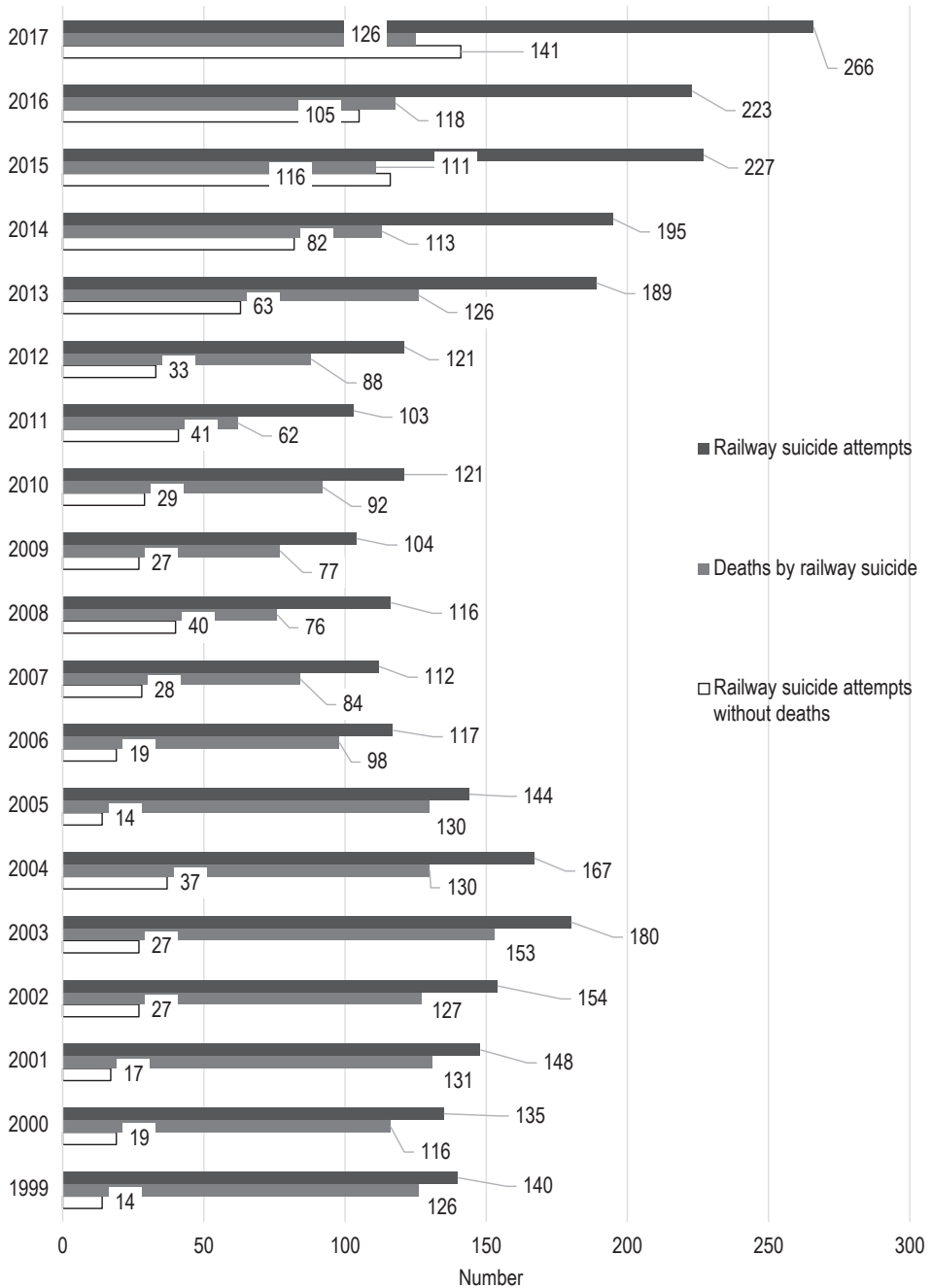


Figure 2. Number of suicide attempts, suicide deaths and attempts without deaths on railway tracks in Poland in 1999-2018. Source: National Police Headquarters [13].

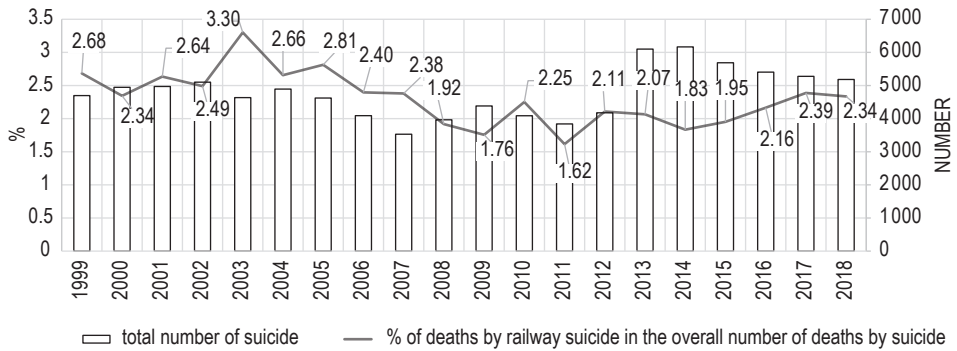


Figure 3. Deaths by railway suicide in the overall number of deaths by suicide in Poland in 1999-2018 in percent and total number of suicide. Source: National Police Headquarters [13].

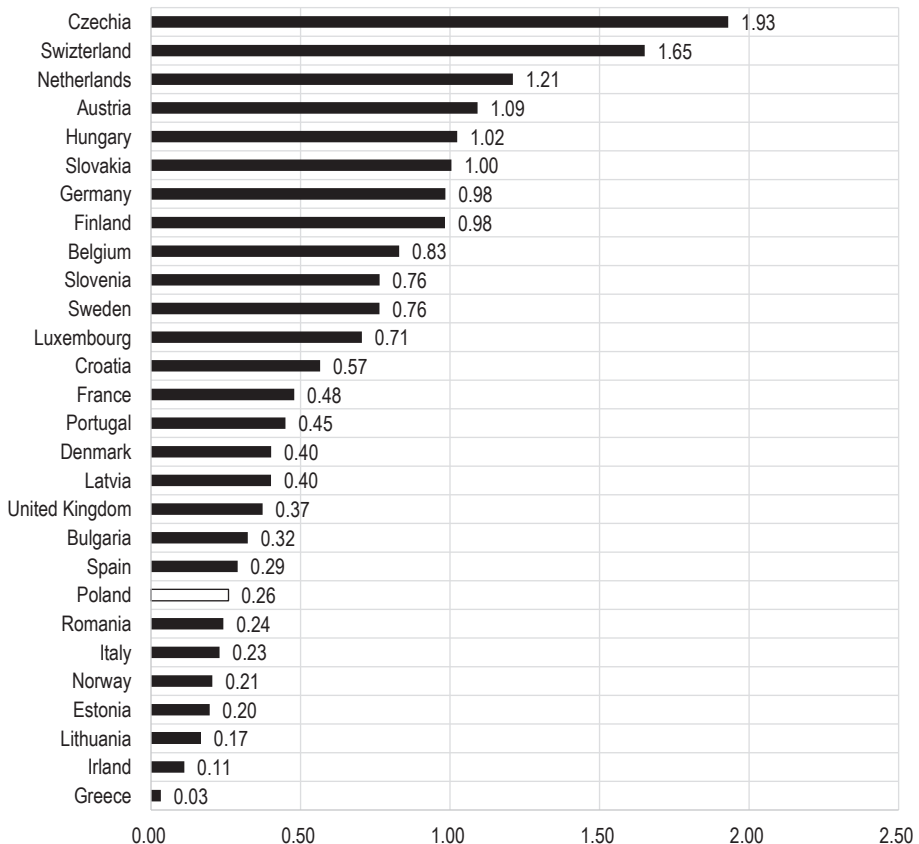


Figure 4. Deaths by railway suicide in European countries in 2007-2018 per 100,000 inhabitants. Source: National Police Headquarters and Eurostat [13,14].

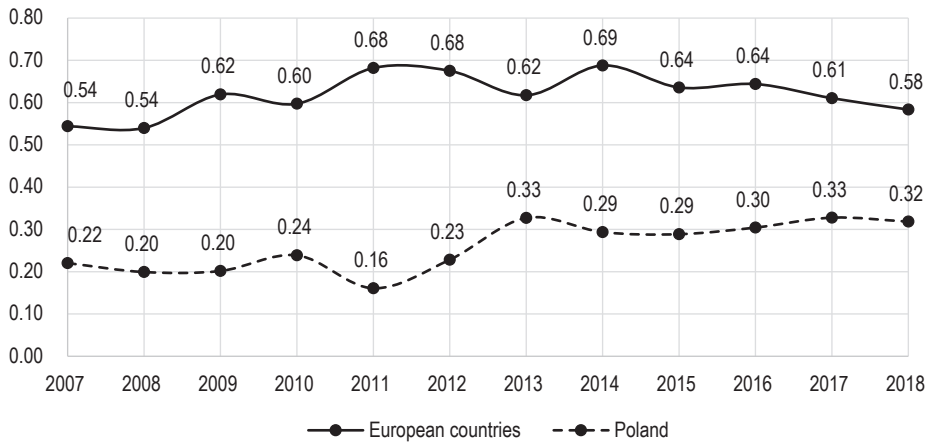


Figure 5. **Index of deaths by railway suicide per 100,000 inhabitants in Poland compared with other European countries.** Source: National Police Headquarters and Eurostat [13,14].

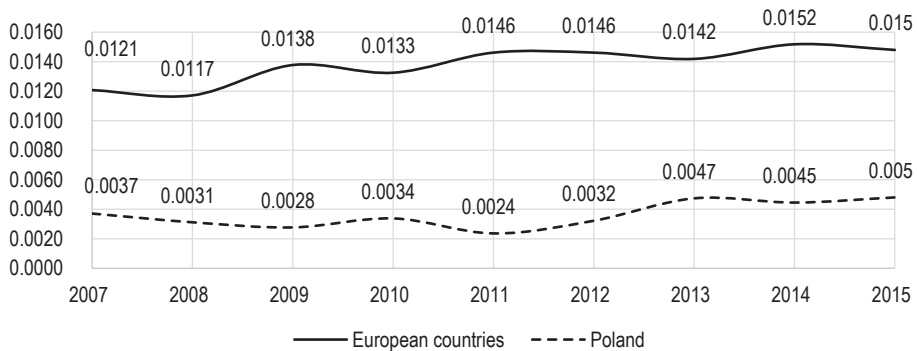


Figure 6. **Normalized index of railway deaths, with consideration given to all instances of suicide death and the length of railway lines in Poland compared with other European countries in the years 2007-2015.** Source: National Police Headquarters and Eurostat [13,14].

1.62 in 2003 and 2011, respectively. A high amplitude of change may be observed over the years: a rise in the years 2002-2003, a drop in the years 2005-2011 and another rise in the years 2014-2017. However the values of coefficients depend on the total number of suicides, which after the radical increase in year 2013, gradually decreases. From 2014, when the last low value of the index was noted, to the present day, a rising tendency has been noted, which corresponds to the decrease in the overall number of successful suicide attempts in Poland. However, the conducted analysis of linear regression indicates that this tendency is not statistically relevant ($F(1,10)=0.868$;

$p=0.373$; $R=0.286$; $R^2=0.08$). Therefore, a steady value of the discussed index may be assumed in the years 2007-2018.

The index values are relatively low in comparison to those noted in other European Union member states. In the Netherlands, in 1980-2007, the average proportion of deaths by railway suicides in the overall number of suicides amounted to 11.5 persons, whereas in Germany, in 1991-2000, it ranged between 5 – 7.9 persons. In England and Wales in 2000-2013 – 4.1% [2,16,17]. With the average number of railway suicides of 99 cases per year, in 2007-2018, Poland occupied a above average position among the countries of Europe, next to Austria (92) and Hungary (102) [15]. When one considers the index of deaths by railway suicide per 100,000 inhabitants, Poland is at the lower end of the list with the value of 0.26.

3.4. Dynamics of change in the frequency of railwaysuicide in Poland

Although the aforementioned data may seem optimistic when one considers the time variability of the index of railway deaths per 100,000 inhabitants in Poland, its constant growth towards the average values observed in the European Union member states is evident (Figure 5). Since 2009, the average death rate as a result of suicide on railways per 100,000 inhabitants in European countries has oscillated around the following values: 0.60 – 0.70. In Poland, since 2009, index changes are lower and range from 0.10 to 0.30, but with a very clear upward trend. Over the past 11 years, there has been an increase from 0.22 in 2007 to 0.32 in 2018. The conducted analysis of linear regression indicated that this tendency is statistically relevant ($F(1,10)=54.396$; $p<0.001$; $R=0.926$; $R^2=0.858$). Therefore, the variability of the discussed index in 2007 – 2018 can be assumed.

In Poland, as in many other European countries, the railway lines are gradually being decommissioned. In the period 1991 – 2016, a reduction in the length of used railway lines in Poland amounted to 26% (2,600 km less tracks). A similar phenomenon of railway line depletion was noted in Germany and France. In terms of the density of railway lines, Poland occupies the tenth position in Europe, with 61 km of railway track lines per 1,000 km². On the other hand, the market of railway services in Poland is growing on a year-to-year basis. Railway journeys in agglomeration and suburban areas are becoming more and more competitive in comparison to car transport. In 2017, the dynamics of passenger journeys, expressed as the number of passengers, rose in Poland by 3.8%. This places Poland on the second place among the EU member states, right after Finland [18]. High-speed rail tracks is to be extended by another 1,600 km of tracks.

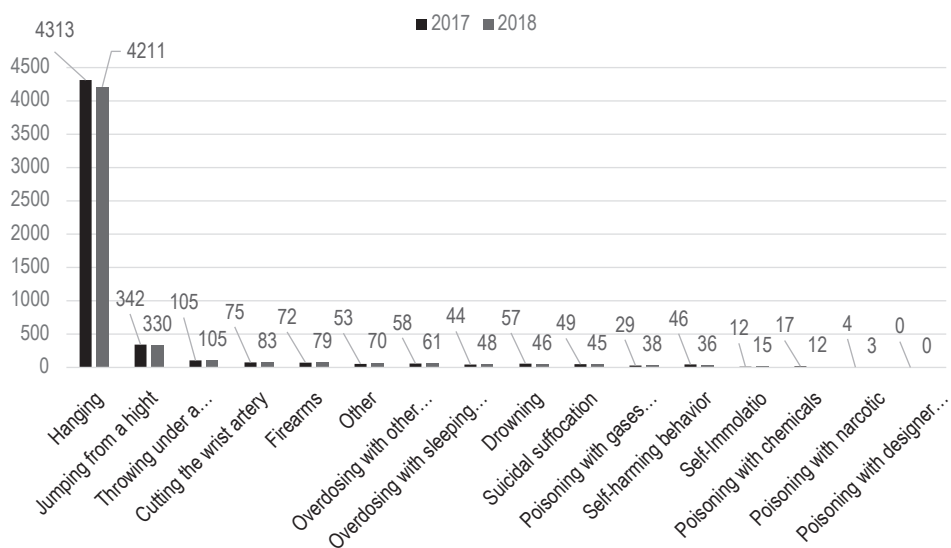
The aforementioned facts may be contributing to the negative changes in the discussed index. It is also known that familiarity with and use of railways (so-called patronage) are also believed to be one of the predictors of suicidal behavior [2,19].

3.5. Railway suicides and other methods of committing suicide in Poland

In Poland, as in other countries of Europe and the world, one of the most frequently chosen methods of deliberately killing oneself is death by hanging [20]. In 2017–2018, it accounted for 81–82% of all suicide deaths in our country (see Figure 7).

Figure 7. Fatal suicide attempts in Poland, including the manner in which they were committed. 2017–2018. Source: Police Headquarters [13]

It is a method chosen 13 times more often than the second method of throwing from heights (6.3–6.5% of all suicides). Suicide on railway tracks is the third method of killing oneself taken by Poles and accounts for about 2.5% of all suicide deaths. In 2017 and 2018, throwing yourself under a driving vehicle was used as a suicide method by 241 and 220 Poles, respectively. For 105 suicides each year, it turned out to be effective. In 2000–2005, in most European countries, the most common method of suicide death was hanging (49.5% of all suicide deaths), drug poisoning (12.7% of deaths), throwing from heights (9.5% of deaths) and the use of firearms flammable (7.6% of deaths). In these years, in European countries, deliberate mutilation as a result of throwing or being placed in front of a moving vehicle – bus, train (subway)



Rycina 7. Zamachy samobójcze w Polsce zakończone zgonem z uwzględnieniem sposobu ich popelnienia. 2017-2018. Źródło: Komenda Główna Policji [13].

or other – was used in 5% of cases [21]. To sum up, hanging, throwing from a height and under a moving vehicle were typical methods of killing oneself in Poland in the years 2017-2018. The choice of the type of suicide depends on the strength and type of the suicide motive. If the motive for a suicide attempt is solely the end of life (the autonomous nature of the suicide attempt), and the suicidant's motivation is very strong, the most violent and effective methods are selected. The decision also depends on the availability of tools needed to kill yourself. The results of many scientific studies provide evidence that the choice of railway tracks as the place of death is related to their accessibility and high probability of test success (difficulty in stopping rushing trains, dense railway network, heavy railway traffic near the place of suicide's residence or hospital) the psychiatric facility in which it is treated, the short distance between the railway line and the suicide's place of stay [19].

Discussion

In the world, many measures are taken to limit the accessibility of railway tracks to unauthorized persons. Barriers are installed that prevent access to the drainage pits running along the railroads, screen doors, partitions and monitoring systems are installed on station platforms. So far, in Poland, there are no studies aimed at determining the risk factors typical for the country of suicide on railway tracks and in railway infrastructure buildings, or identifying conditions conducive to committing suicide in the above-mentioned places. It is about identifying high-risk locations (HRL), identifying typical suicide behaviors preceding the act (based on the analysis of images from cameras located on station platforms). It is known that the places of committing suicide on the railroad are not evenly distributed along the entire rail network of the state. In the Netherlands, 20% of railway suicides occurred close to large psychiatric hospitals [2]. In Austria, suicides took place within 15 identified risky locations, the so-called hotspots and accounted for from 9.8% to 16.8% of all railroad suicides in the analyzed period of time [22]. In Belgium, between 2003 and 2007, 35% of all those who died of suicide on railroad tracks died in 34 identified hotspots [23]. Taking into account the frequency of attempts suicides and deaths, taking into account their place, railroads and railroads rank sixth in Poland. In 2017–2018, 266 and 250 suicide attempts were made, respectively, in the area of the railway infrastructure, of which 126 and 121 ended in the suicide's death. It concerns both railway tracks and throwing yourself under a rail vehicle, as well as station buildings and death, e.g. as a result of hanging. More suicides than on the railroad are committed in an apartment, on the terrain of a residential building, in an outbuilding, in a park and in the forest, which results from the choice of the method of suicide by hanging. One should also pay attention to the fact that suicide attempts in railway buildings may differ in the methods of taking their own lives. In the last 7 years, the Polish State Police launched a unified system documenting suicide events, which is still being

developed and modified. Since 2013, the method of collecting data on suicides on railway tracks and in station infrastructure buildings has changed. Currently, the data is entered into the Police Crime Statistics System using the KSIP 10 form: “Registration of a suicide attempted report” as soon as it is determined that it was an attempt to take life. Moreover, the system “suspends” the data for a month, which allows for their modification if it is found later in the investigation that the cause of death was not a deliberate act. In 2017, the KSIP 10 form was replaced with a new one called: KSIP 10 – Report on suicide attempt / behavior, and the scope of the collected data was extended to include: indication of the place of attempt (railway area or tracks) and the method of suicide attempt (throwing under a moving vehicle). The data also includes information on the deceased’s gender, age range, education, marital status and employment. As already mentioned, in Poland, in addition to the Police, the authority carrying out investigations into railway accidents is the State Commission for Investigation of Railway Accidents. The information collected by the Commission is sent to the European Railway Agency [24]. Documenting suicidal behavior and cases of unauthorized railroad incursions by the Council results from Poland’s accession to the RESTRAIL project, along with 17 railway organizations from 11 European countries and Israel. Despite the efforts made, the report on the work of the international team, using the data of the said Commission, contains information inconsistent with that obtained by the Polish State Police. For example, the percentage of railway suicides in the total number of suicides in Poland in 2011 and by mid-2012 was estimated at 1 percentage point, which is much less than the police data [24]. It can therefore be seen that the method of documenting data on suicidal behavior on tracks in Poland requires further improvement in order to increase its precision.

In 2011, Reynders et al. Found that the data on deaths as a result of railway suicide from domestic sources are unreliable [25]. The authors of the article used information relating to the period: 2006–2007, coming from national sources and ERA data. For Poland, the rate of deaths as a result of suicides per 100,000 inhabitants according to national data was 0.08 (95% confidence interval (CI): 0.06–0.10), while according to ERA data it was 0.07 (95% CI: 0, 05–0.09). The authors of the article, reflecting on the likely reasons for the discrepancy in the data, indicate the ways of qualifying actions considered as suicidal behavior by Polish state institutions. They draw attention to the relatively frequent use of the category “undefined intention” to denote causes of death. The frequency of using the above-mentioned category in Poland was the highest among the 15 European countries surveyed by the authors of the mentioned article. They further argue that the share of suicides in the total number of deaths on the tracks railway lines in Poland is doubtfully low. Average percentage of total suicides the number of deaths on tracks in Europe was 57% over this period, while in Poland it did not exceed 19%. It should be noted that in 2011. The above comment also applied to 6 other European countries. Found

and Llorka [5] noticed that statistical data from countries such as Poland, Portugal, Armenia and Greece should be treated with caution as suicide can happen be incorrectly classified as being accidental or having some other cause. This can lead to an underestimation of the phenomenon.

Police information appears to be the most reliable source on the subject suicidal behavior, especially if the causes can be verified death after the end of the investigation. However, coding in police forms suicidal behavior in two categories at the same time (location and manner committing suicide) is not precise enough. It may happen that suicide is committed on the premises of a train station by some other method, such as hanging or throwing in front of a bus. Road accidents at railway crossings (classified as train intrusion) may also be omitted, which however occurred as a result of the deliberate action of the driver. Data reliability can be improved by introducing a category linking the suicide method with its location into the form. Coding of suicide acts used in some countries (eg Australia) using the category “intentional self-harm by jumping on or standing in front of a moving object”(X81) derived from the ICD-10 mental and behavioral disorder classification manual, may also not be sufficiently precise.

6. Limitation of the study

The basic limitations of the study arise from the specific nature of the research material. Due to the need of personal data protection, the information published by the National Police Headquarters does not refer to the history of psychiatric treatment of the person who committed suicide, previous suicide attempts, and other information that would be helpful in creating a profile of suicide on railway tracks. Considering the changes in registration procedures, not all data are available for specific periods of time. The information might not include accidents related to trespassing on tracks with suicidal intent. They may be registered as other causes of death. Despite these limitations, the current study provides basic information about railway suicide, and allows to compare with international data.

5. Conclusions

- 1) Poland belongs to a small group of European countries where the number of deaths by suicide has displayed an upward tendency in the course of 20 years. The occurrence of railway suicide behavior in Poland in 2007 – 2018 was characterized by gradual increase in comparison to other EU member states. This is clearly visible in the Eurostat database and, to a lesser extent, in the data of the National Police Headquarters.
- 2) The index of deaths on railway tracks per 100,000 inhabitants, with consideration given to the changes in the length of railway lines in Poland in 2011

- 2015, was considerably similarly as the average index for the European countries.
- 3) In 2017 – 2018, throwing oneself under a train to end one's life was the third most commonly chosen method in Poland. Although it accounted for only a small percentage of all methods of suicide, it was chosen relatively more often than in other European countries.
 - 4) Despite gradual changes introduced in Poland with regard to a reliable registration of suicidal behavior in general, and particularly of those on railway tracks and in railway infrastructure buildings, it is still necessary to further improve the way of recording these events.
 - 5) In Poland, there are no analyses that would allow identification of predictors of suicidal behavior on railway tracks with use of current scientific knowledge. This is related to the shortcomings in data collection methods.
 - 6) It is planned to continue the studies using further data obtained from the National Police Headquarters. The purpose is to create reports on high risk locations regarding to railway suicide, and a profile of typical railway suicide.

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