



Article

Calculation of Costs Related to Death by Suicide in Finland

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Abstract: There are relatively few calculations of the costs related to suicides. The aim was to produce a monetary estimate of the costs incurred as a result of suicides. The costs were divided into three categories: (1) loss of labor input, (2) costs directly following a suicide, and (3) costs associated with family members. In our two sample cases, the costs related to suicides were from EUR 309,020 to EUR 456,279. By putting the monetary costs of suicide prevention intervention and the calculation of costs related to a death by suicide side by side, this study may help when allocating funding for effective intervention.

Keywords: suicide; death; suicide prevention; cost; monetary estimate of suicide

1. Introduction

There are relatively few economic evaluations of suicide and self-harm interventions. Published calculations of the costs related to suicides are even fewer (de Beurs et al. 2015; Madsen et al. 2018; McDaid 2016). However, policymakers seek monetary calculations to make informed decisions. It is important to be aware not only of what suicide prevention interventions are cost-effective but also of the amount in terms of costs and the variety of people that are affected by suicide. A successful suicide prevention intervention or strategy saves not only money but also lives, and prevents human suffering, which should always be our priority (Kennelly 2007). Although in some cases, it is uncertain if an intervention is cost-effective or not, the costs related to death by suicide are a certainty.

Different studies seeking to assign a monetary value to the costs of suicide have come up with figures ranging from approximately EUR 57,000 to EUR 1,300,000 (Bagley 2012; Kinchin and Doran 2017; Shepard et al. 2016; Svedberg 2017). Table 1 presents a comparison of these estimates with the cost factors included in them. It can be seen from the table that there are several methods to calculate the costs; thus, each method leads to different results. Tracing the causal chains required for producing a cost estimate is challenging, as each suicide attempt resulting in death touches its environment in different ways, and the group of people who have lost their lives by suicide is heterogenic in terms of their ages and living areas, among other things (Finnish Institute for Health and Welfare 2018; Partonen et al. 2003).

The cost estimate discussed in this paper does not attempt to prove the cost-effectiveness of suicide prevention interventions. This report shows the first calculations of the costs related to death by suicide in Finland. The main objective is to produce a monetary estimate of the costs incurred from suicides and the high price paid by society. Since the starting point of suicide prevention should always be ameliorating human suffering rather than reducing the costs incurred after suicides, it also makes visible the large scale of the parties involved in the aftermath of a suicide and their respective roles. In addition, we compared the cost estimations with those calculated for diabetes, to emphasize the magnitude and, thus, the relevance to public health.



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Table 1. Calculations related to the costs incurred from suicide.

Source	Estimate of Costs Incurred from a Suicide	Factors Included in the Calculation
Bagley (2012) A Social Return on Investment Analysis: Summary Report. Leeds Survivor-Led Crisis Service.	GBP 1,200,000 Approx. EUR 1.3 million	Victim's loss of earned income. Human costs for the spouse/partner and family. Direct service costs of suicide (ambulance, police, insurance, administration). Costs incurred from property losses by a third party.
Shepard et al. (2016) Suicide and Suicidal Attempts in the United States: Costs and Policy Implications. <i>Suicide and Life-Threatening Behavior</i> 46 (3).	USD 66,218–2,012,476 Approx. EUR 57,000–172,000	Treatment of injuries. Loss of productivity.
Kinchin and Doran (2017) The Economic Cost of Suicide and Non-Fatal Suicide Behavior in the Australian Workforce and the Potential Impact of a Workplace Suicide Prevention Strategy. <i>International Journal of Environmental Research and Public Health</i> 14 (347).	AUD 1,469,381–2,005,854 Approx. EUR 930,000–1,270,000	Disruption of productivity. Loss of human capital. Treatment costs, administrative costs (investigation, travel, funerals). Other costs, such as the costs of transporting the victim from the scene.
Svedberg (2017) The Economic Cost of Suicide to Society—An Estimation of the Net Economic Cost of all Completed Suicides in Sweden in 2015. Department of Economics, University of Lund, Sweden.	SEK 2,460,000–2,690,000 Approx. EUR 233,027–254,815	Transport of the victim from the scene to hospital, etc., the victim's potential treatment in emergency medical care or intensive care before death. Costs of a medicolegal officer and autopsy. Costs of police attendance and paramedics' services on scene and afterward. Property losses caused by suicide. Loss of imputed income by the victim. Loss of income by family/friends, e.g., during sick leave. Potential savings from pension not paid, treatment costs, etc.

2. Materials and Methods

The estimates of costs related to deaths by suicide were received by combining interviews with a variety of experts and professionals working in the field with statistical data, for example, from the Social Insurance Institution of Finland (Kela), the Finnish Centre for Pensions and Finnish Institute for Health and Welfare. Factors and parties have been included or excluded, following the principle of essentiality ([Klemelä 2016](#)). For example, this principle is evident in that the experts and professionals were asked to give estimates based on typical cases, statistics, or presumed averages. While the reliability of data based on mere estimates may be questioned, expert estimates that are underpinned by solid experience make it possible to draw up cost estimates that are, at least, indicative. The principle of essentiality is also demonstrated in the effort to base the calculations on how common the factors to be included in it may be: a suicide touches many different parties, but for the purposes of this estimate, the factors that are likely to come into play in most or all cases were selected. For example, the parties involved in establishing the cause of death are always deployed in the aftermath of a suicide.

This calculation process was supported using the SROI method (social return on investment, for more, please see, e.g., [Banke-Thomas et al. 2015](#)), which was developed for assigning a monetary value to the impacts of work by non-governmental organizations. The SROI method is based on a benefit–cost ratio analysis, even though it accounts for different socioeconomic outcomes more extensively than conventional approaches ([Banke-Thomas et al. 2015](#)) and applies highly creative methods to assigning a monetary value to abstract results by drawing parallels in different ways (see, e.g., the assignment of

monetary value and creation of proxy variables (Klemelä 2016)). Thus, the SROI method is a tool for making cost estimations; however, these are not perfect in terms of fair value.

As this estimate seeks to assign a monetary value to a death by suicide, aiming to reduce a recurring phenomenon that creates a heavy public health burden rather than connecting it specifically to NGO work, the SROI method could not be followed, as such; at different stages of the work, the method was applied quite freely, ensuring that it has supported the objective of the evaluation. The SROI method was relied upon when it was considered to serve the needs of formulating this cost estimate optimally. SROI was selected as the method because of its principles regarding the availability and assignment of monetary value. As the evaluation progressed, a decision was made to drop some of the principles of assigning monetary value. Potentially speculative proxy variables were not needed, for example, as a great number of factors with pre-assigned values were already associated with the object of the evaluation. Additionally, it was found that assigning a monetary value to many of the social impacts associated with suicide is sometimes even impossible, such as grieving by survivors.

Unlike the SROI method, the cost estimate discussed does not attempt to prove the cost-effectiveness of suicide prevention interventions. The main objectives are to stress the large scale of the costs incurred from suicides and the high price paid by society and to collate general knowledge of the parties involved in the aftermath of a suicide and their roles. The starting point of suicide prevention should always be ameliorating human suffering rather than reducing the costs incurred from suicide.

The costs of suicide are usually divided into three categories: (1) direct, (2) indirect, and (3) human costs. Direct costs refer to very explicit costs, such as emergency services or funeral expenses. This evaluation ultimately only estimated the costs associated with death by suicide shown in Table 2. Such cost items as the funeral and the declaration of the estate were excluded, as they would have been equally closely associated with a 'natural death' and incurred sooner or later, in any case. In other words, the temporal examination in this report extends until the ends of the relevant persons' lives.

Table 2. Direct and indirect costs associated with death by suicide.

	Prehospital emergency medical care provided by the rescue services. Cause of death investigation. Costs associated with family members:
Direct costs	<ul style="list-style-type: none"> - Family members' incapacity for work. - Resources needed for supporting family members. - Crisis counseling provided by a municipality or city. - Crisis support provided by the parish. - Third-sector crisis centers and support groups. - Psychiatric care. - Rehabilitative psychotherapy.
Indirect costs	Loss of labor input

Indirect costs, on the other hand, refer to lost output or production, in terms of paid or unpaid work, due to premature mortality. The third category of human costs refers to the value that is placed on an individual's life or work (Kennelly 2007). In this paper, the authors have concentrated on direct and indirect costs (Table 2).

While this calculation embraces and takes into account a wide range of factors and parties, it is not all-inclusive, due to a lack of information or expert evaluations. The objective was to produce a more detailed initial cost estimate concerning suicide cases and to spark ideas for producing more comprehensive cost estimates in the future.

2.1. Loss of Labor Input

The costs from the loss of labor input were previously mentioned as indirect costs. When the costs or losses of income incurred from a suicide are examined from the per-

spective of the victim's lost labor input and, in particular, labor input subject to income tax, different suicide cases can be classified, based on the person's age and educational background. This way, losses of income tax revenue incurred in different cases can be calculated with greater accuracy.

The calculation of lost tax revenue (see Table 3) presented in this paper was drawn up by a senior adviser from Impact Investing at the Finnish Innovation Fund (Sitra). The estimate is based on the tax scale of 2017, and the income taxes of different groups, classified by age and educational background, were calculated using average salaries and the employment rate of each education-based class. From the income tax value, we subtracted the labor market subsidies as indicated by the unemployment rate, the average social assistance and housing allowance amounts for each age group and education class, and the accumulating employee pension, on which taxes are paid after the employee reaches the presumed retirement age (64 years). The sum of the aforementioned incomes and costs was added up, from the age of scrutiny until the end of average life expectancy, and the figures were divided between seven age classes to simplify the use of Table 3.

Table 3. Loss of income tax revenue per age group.

Age in Years	Basic Education	Secondary and Lowest-Level Tertiary Education	Lower-Degree Level Tertiary Education	Higher-Degree Level Tertiary Education
0–17 *	EUR 142,881	EUR 241,650	EUR 326,365	EUR 561,912
18–24	EUR 141,986	EUR 236,632	EUR 322,928	EUR 562,159
25–34	EUR 130,784	EUR 205,759	EUR 289,451	EUR 555,394
35–44	EUR 97,886	EUR 144,845	EUR 216,004	EUR 501,253
45–54	EUR 39,114	EUR 57,498	EUR 84,248	EUR 154,088
55–64	EUR 17,794	EUR 25,010	EUR 40,331	EUR 155,621
65 or older				

* For those aged between 0 and 17 years, the income tax calculation for 18-year-olds was used.

A uniform method was applied for the calculation of income taxes of those of working age, aged between 18 and 64. To those aged under 18, the income tax calculation for 18-year-olds was applied, with the assumption that some of them would later have made their way into the labor market; this means that the labor input over their entire working age is lost. A calculation method based on income tax could not be used for those of pensionable age, as pensioners' labor input may consist of voluntary work, for instance, to which it is difficult to assign a monetary value. On the other hand, pensioners may also make an indirect labor input by caring for their grandchildren, enabling the children's parents to work.

It should be noted that Table 3 only focuses on tax revenue or the amounts that the public administration can expect to collect from an individual engaged in paid employment. Loss of productivity could also be examined in terms of lifelong income, which would illuminate an individual's impact on the national economy as a consumer, including the value-added tax revenue from consumption. Accounting for work that is not subject to income tax would also be possible, in the case of both the employed and the unemployed. In this paper, work not subject to income tax would include the numerous ways in which people actively influence their surroundings: domestic work, childcare, informal care, and voluntary work are examples of this. When estimating the costs incurred from suicide, the accuracy of this calculation could be improved by also including in it a wide range of factors associated with work of this nature.

The costs incurred from the loss of work that is not subject to income tax can be examined through the current money transfers received by suicide victims' families. When one of the breadwinners in a family dies, for example, there is an increase in the dif-

ferent current transfer amounts, including the survivor's pension, social assistance, and housing allowance. According to the [Finnish Centre for Pensions \(2018\)](#), the average spouse's pension, paid from the employee pension system, was EUR 571 a month in 2018. On average, this means a current transfer of EUR 6852 for each year of life of a suicide victim's spouse.

2.2. Costs Directly Following a Suicide

The costs directly following a suicide refer to the pre-hospital emergency medical care provided by the rescue services and the cause of death investigation.

2.2.1. Pre-Hospital Emergency Medical Care Provided by the Rescue Services

An expert cost evaluation concerning the rescue services was obtained from the Head of Emergency Medical Services at Helsinki City Rescue Department. The estimate concerning rescue services was produced by collating the expert's views and using the statistics from pre-hospital emergency medical care reports.

According to the Head of Emergency Medical Services, suspected suicides are not recorded in prehospital emergency medical care reports in a form that would make it possible to pick suspected suicide cases out of the reporting system directly. He notes that depending on the method of death by suicide, the average duration of missions was calculated as 55 min. According to him, two paramedics usually attend the scene, but, in some situations, this number may be as high as five to eight.

Based on this information, a conservative estimate was made, in which the duration of the mission was rounded up to a full hour, while two was used as the number of paramedics. According to this estimate, the salary costs corresponding to one working hour of two paramedics would, thus, be incurred in the case of a suicide.

A default formula was developed to calculate the salary costs, in which the following assumptions were used:

- A 7.5 h/working day, Monday to Friday.
- Working days in a year $52 \times 5 = 260$.
- Two days of leave/month = 24 days of leave/year.
- Sick leave for 5 days/year.
- Public holidays of approximately 10 days.

Based on these assumptions, the number of working days in a year would be as follows: $260 - (24 + 5 + 10) = 221$, which would mean 1657.5 working hours a year and 7.5 h per day. This default formula was used, even if the work schedules of emergency medical care personnel on rescue missions do not obey the ordinary weekly rhythms, as paramedics also work in the evenings, at night, and during holidays. The essential point of the calculation, however, is the number of annual working hours, rather than the time when the work is carried out; to simplify the calculation of salary costs, a decision was made to use the default formula, regardless of the person's job title.

The Head of Emergency Medical Services estimated a paramedic's average monthly salary to be EUR 2800. The monthly salary was converted into a salary cost by multiplying it by 1.2, to account for the employer's non-wage labor costs. The cost of a paramedic's working hour would, thus, be EUR $(2800 \times 1.2 \times 12)/1657.5 = \text{EUR } 24.33$.

Based on these assumptions, the costs incurred from the paramedics' attendance in suicide cases would, thus, be approximately EUR 48.67. This estimate only covers the medical personnel, without including the costs associated with the required equipment, medications, and transport. According to the Head of Emergency Medical Services, the average expenditure on an emergency medical care mission in 2017 was EUR 189, including all costs.

2.2.2. Cause of Death Investigation

Depending on the method used by the victim, the tasks performed by the police in a suicide case range from attending the scene to investigating the cause of death and liaising

with family members. An expert evaluation related to police tasks was provided by a Detective Superintendent from the Helsinki Police Department.

The police mission starts at the time of receiving the alert and arriving at the scene. According to the Detective Superintendent, either a field patrol or an investigation team attends the scene, depending on where and how far away the scene is. The Detective Superintendent notes that approximately one person out of three dies by suicide in a public place, and in these cases, the first group on the scene is a field patrol, which spends around 30 to 60 min on the mission. The field patrol's tasks end with the arrival of an investigation team, which spends one to three hours on the scene. Both a field patrol and an investigation team always consist of two officers. In other words, processing each scene requires some two to eight hours of police work in total.

In addition, the police's tasks include investigating the cause of death, as well as liaising with family members about the investigation, and giving the family feedback. The cause of death may also be determined by a physician (Finlex 1973). The cause of death is investigated by one officer, who also liaises with the family. The Detective Superintendent estimates that depending on the case, this task takes an individual police officer one to two hours to complete. Liaising with the family of a young suicide victim takes considerably more time, and the Detective Superintendent puts this additional time at three hours. Consequently, investigating the cause of death and liaising with the family takes up four to five working hours. The Detective Superintendent estimates that, in total, the police officers' working hours related to a suicide case range from 3 to 13 h.

According to the Detective Superintendent, the average annual salary cost of a police officer is EUR 57,500. Using the default formula for salary costs, the individual hourly costs of the police would be: $\text{EUR } 57,500 \times 1.2 / 1657.5 = \text{approximately EUR } 41.63$. Assuming a labor input of 3 to 13 h, the salary costs of the police are approximately EUR 124 to 541.

In addition to the police, the Forensic Medicine unit of the Finnish Institute for Health and Welfare participates in investigating the cause of death by carrying out a forensic autopsy. A forensic autopsy is always carried out when suicide is suspected to be the cause of death (Finnish Institute for Health and Welfare 2020). According to the Head of the Forensic Medicine unit, the average price of a forensic autopsy in 2016 was EUR 1646.43.

2.3. Costs Associated with Family Members

The costs associated with family members include family members' incapacity to work and the resources needed for supporting family members.

2.3.1. Family Members' Incapacity for Work

When a person dies by suicide, family members may lose their capacity for work. Incapacity for work may be permanent, partial, or temporary: permanent incapacity for work refers to an incapacity that is likely to continue, at minimum, until retirement age; partial incapacity refers to a partial incapacity for work that will continue, at minimum, until retirement age (in other words, part-time work); temporary incapacity for work means an incapacity that has a set duration. When family members are incapacitated for work, not only lost tax revenue but also sick leave costs are incurred.

This calculation roughly factored in the costs incurred from the family members' incapacity for work as lost tax revenue, with an accuracy of one year. To calculate these amounts, Table 3 and the sources that were used to compile it were drawn upon.

2.3.2. Resources Needed for Supporting Family Members

Support offered to suicide victims' family members typically consists of psychological first aid or crisis counseling. The Finnish Medical Society Duodecim (<https://www.duodecim.fi/english/>, accessed on 6 October 2022) regards the system of psychosocial support and services offering psychological first aid as consisting of crisis services that are provided by municipalities, hospital districts, parishes, and NGOs, as well as services

available at workplaces and in schools. Of these services, the cost estimate must factor in the services offered by municipalities, parishes, and NGOs.

2.3.3. Crisis Counseling Provided by a Municipality or City

An expert's view of those practices followed in crisis counseling provided by a municipality or a city were obtained from the Head of Crisis Work in the City of Helsinki's Social Services and Health Care department.

Municipalities and joint municipal authorities have a statutory duty to offer crisis counseling to residents in distress (Finlex 2011). An effort should be made to provide this support immediately after the incident that resulted in the crisis. According to the Head of Crisis Work, the objective of crisis counseling offered by a municipality, after instituting a brief client relationship, is to direct the clients toward suitable help, including third-sector crisis support services, occupational health care services, or a psychiatric outpatient clinic.

Before directing a client to other services, the tasks of the municipality's crisis support services include organizing crisis meetings with the client, as appropriate for the client's situation. Crisis counselors work in pairs when meeting clients. The clients may range from an individual family member to a larger group (such as an entire family). According to the Head of Crisis Work, on average, five crisis meetings are held with a client to work on a family member's suicide, with a typical meeting duration of 1.5 h. This means that the municipality provides, on average, 7.5 h of support to the families of suicide victims. In terms of crisis counselors' salary costs, supporting a family member or a group of family members thus entails the cost of 15 working hours. According to local government employers (Kuntatyöntajat 2019), the average earnings of a crisis counselor in 2017 were EUR 2583/month, depending on their role. Using the default formula discussed above, the hourly costs of a crisis counselor's working time would be $\text{EUR } (2473 \times 1.2 \times 12) / 1657.5 = \text{EUR } 22.44$. With a labor input of 15 h, the salary costs incurred by a city or municipality in terms of providing crisis support for a family member or a group of family members would be approximately EUR 336.60.

The Head of Crisis Work notes that a family member may remain a client of the municipality's crisis center if no other place that is suitable for working through the crisis can be found for them. If a client cannot use the occupational health care services, the third sector, private services, or a psychiatric outpatient clinic, for example, the crisis center can offer them other services, as necessary, for the period during which the client feels they need support. The duration of most client relationships is from one month to a year; during this period, the client's mental health is monitored, following the Current Care Guidelines, which are published by the Finnish Medical Society Duodecim. On the other hand, visits to the crisis center can continue for longer, while the client is waiting to gain access to support provided by another party; the client is, thus, looked after during the transition period.

2.3.4. Crisis Support Provided by the Parish

An expert evaluation of the crisis support provided by parishes was obtained from a Senior Specialist in pastoral care at the National Church Council of the Evangelic Lutheran Church of Finland. According to the Senior Specialist in pastoral care, parishes offer suicide-related crisis support in different forms, including family counseling, home visits, debriefing and bereavement support events, and on-call counselors. Groups of parish employees that participate in organizing suicide-related debriefing and bereavement support events include chaplains in hospitals, prisons, workplaces, and educational institutions, as well as chaplains, youth workers, and social workers engaged in pastoral work, who are responsible for cooperating with educational institutions and workplaces in the area and who have received crisis counselor training. According to the Senior Specialist in pastoral care, an effort is made to have two employees present at crisis debriefing events. Parish crisis counselors also have opportunities to receive a hospital chaplain's minimum monthly salary of EUR 3150 (Kirkon Työmarkkinalaitos 2017); on this basis, the estimated cost of one hour of the parish's work would be $\text{EUR } (3150 \times 1.2 \times 12) / (1657.5 \times 60) = \text{EUR } 27.37$.

Based on a labor input of 60 h, the costs debriefing and work supervision can be broken down, as follows.

A hospital chaplain pays home visits to a suicide victim's family and friends on request. Debriefings are usually organized for the close community of a suicide victim's family member (including their work community, or a pupil's classmates) immediately after the event. A parish crisis counselor often also maintains a presence and is available to talk with for several days. Additionally, a bereavement support event is organized for the victim's close circle. Open bereavement support events are also organized, at which everyone who has in some way been touched by the incident is welcome. Open bereavement support events usually take place in a church or chapel. Shared morning assemblies are also typically organized on community premises to talk about what has happened with the entire community. The parishes also run a church counseling service, provided both by telephone and on a chat platform.

According to the Senior Specialist in pastoral care, the crisis work in the case of a suicide takes hours or days. To facilitate the calculation, the time taken up by the parish's crisis work was estimated as follows: (1) home visits to family and friends by two counselors of approximately 5 h = approximately 10 h; (2) debriefings and bereavement support events for the victim's close circle and on-call counseling support provided by two counselors, for approximately 20 h = 40 h; (3) bereavement support events and morning assemblies for the close community (e.g., entire workplace or educational institution, etc.) for approximately 5 h, and (4) open bereavement support events, for approximately 5 h. According to this estimate, the work in the aftermath of a suicide would take up approximately 60 h of the parish's time. Calculated on the basis of costs incurred by the parish, this would total EUR 1642.2. Most of the working hours would consist of debriefing, bereavement support, and discussion events at the victim's educational institution or work organization. Consequently, the total figure only applies if the suicide victim belonged to one of these communities.

2.3.5. Third-Sector Crisis Centers and Support Groups

NGOs run various crisis centers and organize support groups for the families of suicide victims. The Executive Director of Surunauha (a registered association), was interviewed for this cost estimate.

Surunauha (<https://surunauha.net/en-sv/>, accessed on 6 October 2022) is a national association that provides peer support for those who have lost loved ones to suicide. According to the Executive Director of Surunauha, activities visible for clients include a peer support helpline, online chat, individual support activities, closed and open peer support groups, different individual events, and repeated peer support weekend events. In 2016, Surunauha's activities reached out to a total of 659 persons in need of support around Finland, by means of peer support groups, individual support activities, weekend events, telephone support, and online chats. Open events additionally attracted approximately 1000 participants, who were not limited to family members and friends of suicide victims. Of the family members, women are particularly likely to use peer support services: the majority of those contacting Surunauha, approximately 85–90%, are presumed to be women.

When itemizing the cost estimate for Surunauha's operation, the training for and coordination of peer support activities must also be included: Surunauha trains volunteers as peer-support group leaders and support persons, without whom the suicide victims' families would require support from other actors. In other words, the volunteers' working hours spent on leading peer-support groups and support person activities are not included in Surunauha's annual costs. According to the Executive Director of Surunauha, volunteers spend an average of 100 h a year performing different peer-support tasks. In 2016, there were 45 volunteers. A monetary value can be assigned to voluntary peer-support work by comparing it to the salary costs of a crisis counselor (EUR 21.48/hour, see Section 2.2.1 for a more detailed calculation). The monetary value of voluntary work for each supported person would be $45 \times 100 \times \text{EUR } 21.48 / 659 = \text{EUR } 146.68$.

The costs of the other activities were estimated by examining the costs in 2016 in proportion to the number of persons who received peer support in 2016. The cost of supporting one family member would, thus, be EUR 301.5. When the work input of volunteer workers is added to this figure, calculated at EUR 146.68 for each supported person, the total based on the averages per supported person is EUR 448.18.

2.3.6. Psychiatric Care

Death by suicide puts the victim's family members under severe psychological stress, which can be presumed to generally require more sustained and intensive support than is offered in the assistance provided by crisis centers and support groups. A family member can be admitted as a patient in psychiatric care if they meet the diagnostic criteria for a mental health disorder and if they are expected to benefit from treatment. A bereavement reaction alone is not a sufficient criterion for being admitted as a patient. The Executive Director of Surunauha notes that those family members receiving psychiatric treatment often have diagnoses of depressive and anxiety disorders.

Once a person has received appropriate treatment at a psychiatric outpatient clinic for at least three months, they can apply to the Social Insurance Institution of Finland (Kela) for a rehabilitation allowance for psychotherapy (see Section 2.3.7 for further information about rehabilitative psychotherapy). The Chief Medical Administrator at the Helsinki University Hospital's Department of Psychiatry estimates that the required appropriate treatment of three months would, on average, comprise approximately three hours of meetings with a specialist, as well as approximately nine 45–60-min visits to a psychiatric nurse. According to the Chief Medical Administrator, municipalities are currently billed $9 \times$ EUR 185 for this treatment, or EUR 1665 in total.

2.3.7. Rehabilitative Psychotherapy

Rehabilitative psychotherapy is intended for persons aged between 16 and 67 whose ability to study or work is at risk because of a mental health disorder (Kela 2022). Rehabilitative psychotherapy may offer a form of longer-term support for a suicide victim's family member, but a precondition for this is a diagnosis of a mental health disorder and the appropriate treatment having been received for at least three months (Kela 2022).

Kela's reimbursement toward a psychotherapy visit is EUR 57.60. This reimbursement can be paid for, at most, 200 rehabilitative psychotherapy visits over three years in total. This means that the family member must first gain access to rehabilitative psychotherapy that is supported by Kela and, secondly, must have the financial resources for funding the part that is not covered by the reimbursement.

The Helsinki and Uusimaa Hospital District's Service price list (Kela 2022) sets the price of one visit to individual psychotherapy at EUR 164. The total cost of individual psychotherapy is, thus, EUR 13,120 over one year (80 visits), EUR 26,240 over two years (160 visits), and a total of EUR 32,800 over three years (200 visits). In practice, the price of an individual psychotherapy visit varies, depending on where the service provider is based and what type of educational background the service provider has. However, according to the Planning Officers at Kela, Kela does not keep statistics on psychotherapy service prices. Statistics are only available regarding the maximum amount reimbursed by Kela out of a psychotherapist's total fee; therefore, an average price for a visit cannot be estimated.

3. Results

As noted at the beginning of the paper, a suicide is often associated with financial costs that can be difficult to quantify, even at the average level. This calculation has factored in the costs that, with a relatively high level of reliability, can be included in average costs, or those that are at least within a reasonable range. The costs in this calculation were divided into three categories: (1) loss of labor input, (2) costs directly following a suicide, and (3) costs associated with family members (Table 4). Table 4 also shows the costs incurred from suicide in two sample cases: a victim with lower tertiary level education,

aged 20, with three close family members, and a victim with basic education, aged 50, who has three close family members, one of whom is the spouse. These two cases exemplify deaths from suicide in Finland since, for decades, the suicide mortality rates have been at a similar level for the five-year age groups of 20–24 years compared with older ones, and the life expectancy is 80 years.

Table 4. Costs incurred from a suicide in two sample cases.

	Aged 20, Lower Tertiary Level Education, No Damage to Property, Three Family Members	Aged 50, Basic Education, Three Family Members Including Spouse
Loss of labor input		
Loss of tax revenue	EUR 322,928	EUR 39,114
Indirect costs		
Prehospital emergency medical care	EUR 189	EUR 189
Police	EUR 541	EUR 541
Forensic autopsy	EUR 1.646	EUR 1.646
Costs associated with family members		
Spouse's pension		- Spouse's pension over 30 years: EUR 204,120
Loss of labor input	- EUR 84,248/family member 1, aged 50/lower tertiary level education, complete incapacity for work - EUR 4393/family member 2, aged 50/basic education/temporary incapacity for work (1 year) - EUR 2851/family member 3, aged 30/higher tertiary level education/temporary incapacity for work (1 year)	- EUR 1268/family member 1, aged 30/higher tertiary level education/temporary incapacity for work (1 year) - EUR 22,659/family member 2, aged 55/higher tertiary level education/temporary incapacity for work (1 year)
Crisis counseling provided by the municipality or city	EUR 322/family members 1–3	- EUR 322/family members 1–5
Support provided by the parish	EUR 1642/student or work community	- EUR 1642/work community
Third-sector support	- EUR 448/family member 1 - EUR 448/family member 2 - EUR 448/family member 3	- EUR 448/family member 1 - EUR 448/family member 2 - EUR 448/family member 3
Psychiatric treatment	EUR 1665/family member 1	- EUR 1665/family member 1
Psychotherapy, year 1 (80 visits)	- EUR 12,400/family member 1	- EUR 12,400/family member 1
Psychotherapy, year 2 (80 visits)	- EUR 12,400/family member 1	- EUR 12,400/family member 1
Psychotherapy, year 3 (40 visits)	EUR 6800/family member 1	- EUR 6800/family member 1
Total	EUR 456,369	EUR 309,110

4. Discussion and Conclusions

Effective suicide prevention may produce considerable returns in monetary terms, as well as in the form of lives saved and reduced human suffering (Kennelly 2007). If suicide prevention is broadened to include interventions in mental health promotion, the savings are even higher, not to mention the increased productivity and quality of life that follow on from highly positive mental health.

This estimate of the costs incurred from suicides cannot be directly compared to the cost estimations calculated for different illnesses. If some type of comparison point is sought, however, diabetes would be the most suitable illness from the Finnish health perspective. In total, 10–15% of all diabetics in Finland have type 1 diabetes, while approximately 75%

have type 2 diabetes. Of those diagnosed with type 1 diabetes, 15% are aged between 20 and 30. Type 1 diabetes is rare but possible in the age group over 50 and in such cities as Helsinki, type 1 diabetes is diagnosed in one to three persons a year in this age group. Type 2 diabetes is becoming more common globally, and patients are developing it at an increasingly early age. In 2004–2005, 16% of men and 11% of women aged between 45 and 74 in Finland had type 2 diabetes. The total mortality rate of diabetics with insulin deficiency was three times higher in men and four times higher in women than the rate at the population level, while the mortality rate of type 2 diabetes patients was almost twice that of the whole population (Duodecim 2018). The costs incurred from diabetes in Finland have been assessed as follows: in the Helsinki region, the total costs of treating a working-age person (aged between 18 and 64) with diabetes (direct costs + additional costs) were, on average, EUR 5488 a year, and the costs of treating a type 2 diabetes patient were EUR 4461 a year in 2014 (Haula et al. 2017). The calculated costs associated with a victim who dies by suicide at the age of 20 (Table 4) consequently correspond to, for example, the treatment costs of a patient diagnosed with type 1 diabetes at 20 over 83 years (in other words, until the person turns 103), and the calculated costs associated with a victim who dies by suicide at 50 can be compared with the treatment costs of a type 2 diabetes patient diagnosed at 50 over 69 years (in other words, until the patient turns 119). Therefore, even a conservative comparison shows that the costs incurred from suicide are rather high.

There are some limitations to our work. The calculation does not include the factor of damage to property associated with the method of suicide, such as writing off a car or cleaning the scene of death. Neither does it include the savings for society obtained by avoiding the payment of any current transfers. The calculation and the examples also do not include suicide attempts that lead to serious injury, along with the consequent disability pension and treatment costs. The cost estimate is affected not only by the way in which each case is defined but also the cost factors included in the calculation. Thus, the calculation produced herein serves as an indicative example of the costs that are most commonly associated with suicide.

Bereavement by suicide is a risk factor for suicide attempts; thus, it is extremely important to support the surviving family members and friends at a very early phase in the process (Pitman et al. 2016). If possible, when a person is suffering the first symptoms of suicidal ideation, health care services should be involved in the care of the person, as well as supporting them through periods of uncertainty and anxiety. Furthermore, when economic evidence is crucial for informed decision-making when putting the monetary costs of suicide prevention intervention and the calculation of the costs related to death by suicide side by side, this process may help when allocating money for effective intervention. There are suicide prevention interventions that may even produce a return on investment (McDaid et al. 2017). Despite the monetary costs or savings, the utmost reason to take action in preventing suicide should always be fostering lives and preventing large-scale human suffering.

Future monetary analyses could take the incidences of suicides in different population groups into account and evaluate the costs according to these factors, thus providing policymakers with a comprehensive and representative estimate of the nationwide suicide costs at a given time point.

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