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# "Behind Blue Eyes". The valuation of knowing someone who attempted or died by suicide in Sweden

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**Abstract**

Advancing the economic understanding of suicide's externalities, this study uses the well-being valuation method (WVM) to quantify the exposure to suicide, specifically through knowing someone near, family, or friend (NFF) who attempted or died by suicide. First, using data from a survey of Swedish adults, we separately estimate several life satisfaction equations. For each equation, we use the same comparison group of individuals who reported never having been exposed to others' suicide, and compare them against different groups, each exposed to NFF-related suicide attempts or deaths. We find that income has a statistically significant positive impact on life satisfaction across all equations, and except for the experience of death alone, all other exposures to suicide have a statistically significant negative impact on life satisfaction. Next, we use these estimates to calculate the monetary compensation required to offset the decline in life satisfaction for individuals exposed to a NFF's suicide attempt or death. The required annual monetary compensation to offset this decline ranges from 6,400 to 9,910 euros, which suggests an economic value for mitigating the negative effects of suicide exposure equivalent to around a median monthly household income. However, our findings should be considered with caution when used to inform healthcare policies and prevention strategies aimed at reducing the spillover effects of exposure to suicide.

**Keywords:** suicide exposure, suicide attempt, life satisfaction, suicide spillover, well-being valuation method, life satisfaction approach, Sweden.

*"Behind Blue Eyes" is a song by the English rock band The Who, released in 1971. The song's lyrics depict a sense of pain and loneliness, with the "blue eyes" metaphorically representing the sorrow and hidden struggles of the individual. Using this title for this paper, that uses data from Sweden, where many people have blue eyes, aims to symbolically reflect the emotional and psychological burdens experienced by those who know someone who has attempted or died by suicide in Sweden.

# 1 Introduction

After more than 30 years of citing the finding that six people are affected by every suicide, Cerel et al. (2019) reported that each suicide impacts approximately 135 people who knew the individual. This finding highlights the substantial ripple effect of suicide, emphasizing the need to learn more about its spillover effects of exposure to suicide and to understand its broader societal impacts. Our paper presents a pioneering exploration into quantifying the economic value of suicide exposure through someone near, family, or friend (NFF)'s suicide attempt or suicide death using the Well-being Valuation Method (WVM), also known as the life satisfaction approach (LSA). Previous studies using this approach found that the annual monetary loss in life satisfaction for individuals experiencing depression ranges from 350 to 45,000 euros per year, with higher values for direct versus indirect experience through NFF with depression (Andrén, 2023). For mental illness more broadly, annual compensation ranges from 21,000-26,000 euros for those directly affected to 30,000-37,000 euros for individuals affected both directly and indirectly through NFF (Andrén, 2024).

Several studies report public perceptions and valuations of suicide prevention, but with notable limitations. Most studies either lack direct comparisons with other causes of death or focus narrowly on specific contexts such as traffic safety. Studies from Japan have investigated the value of suicide prevention (Sueki, 2016, 2017, 2018), but without comparing it with other mortality causes. However, traffic safety studies that compared suicide prevention with traffic fatalities present mixed evidence.Covey et al. (2010) found lower valuations for preventing railway suicide compared to traffic fatalities, while Vimefall et al. (2022) found no significant difference, suggesting that the same value of statistical life might be applicable to both domains.

Despite progress in methodology and findings over the past decade, significant gaps persist in understanding the economic value of mental health treatment and care aspects, particularly given their uneven global distribution and slow integration across healthcare and social care systems (Knapp and Wong, 2020). These gaps persist within traditional methods of

evaluating the costs of mental illness, often neglecting indirect repercussions, and failing to capture the nuanced distinctions between diagnosed conditions and suffering experienced by those exposed to suicide through someone NFF who attempted or died by suicide.

Moreover, official statistics do not track either the number of people affected by suicide in family and social networks or the economic costs of their suffering due to their exposure to suicide. Our study addresses this gap by providing monetary quantification of exposure to suicide through knowing someone NFF who attempted or died by suicide. Using representative Swedish adult population data, we estimate life satisfaction equations for subsamples with different types of suicide exposure. Each subsample includes a comparison group of individuals never exposed to others' suicide and groups exposed to specific experiences: knowing someone who attempted suicide, knowing someone who died by suicide, having both experiences, or having either experience. According to our calculations, the required annual monetary compensation to offset life satisfaction decline for those with suicide experiences through NFF ranges from 6,400 to 9,910 euros. Our findings suggest potential socio-economic benefits from identifying and addressing the often hidden suffering of those exposed to someone NFF's suicide attempts or deaths, but they should be used with caution when guiding healthcare policies and prevention strategies.

The remainder of this paper is structured as follows. Section 2 describes different alternatives for valuing non-financial costs of mental health and presents the well-being valuation method. Section 3 presents the institutional settings, the survey design, and descriptive statistics of variables used to compute the monetary compensation that would keep individuals' life satisfaction unchanged when they know someone NFF who attempted or died by suicide. Section 4 discusses the results for the life satisfaction regressions and the monetary value of suicide spillover effects. Section 5 concludes.

# 2 Valuation of knowing someone near who attempted or died by suicide

## 2.1 Valuation of health conditions

The health economics literature provides several valuation methods aimed at comprehensively assessing the non-financial costs associated with various health conditions. The methodological toolbox for determining the value of health contains multiple methods and approaches, each designed to consider a spectrum of aspects, including medical, economic, ethical, and societal dimensions. While standardized health utility metrics such as Quality-Adjusted Life Years (QALY) or Disability-Adjusted Life Years (DALY) have been developed to quantify the value of different health states, allowing comparisons across a range of health conditions, the Cost-Benefit Analysis (CBA) uses welfare economic principles to monetize both the direct and indirect benefits of health interventions relative to their resource costs, facilitating welfare-maximizing resource allocation decisions under budget constraints.

Valuation methods have been developed based on individuals' preferences and experiences. While preferences are usually linked to utility, experience-based measures refer to people's subjective experiences of their own well-being. The literature distinguishes between two fundamental approaches to health state valuation: preference-based methods grounded in utility theory and experience-based measures capturing realized subjective welfare. Subjective well-being (SWB) measurement directly quantifies experienced utility through validated psychometric instruments, making it well suited for capturing the complex psychosocial externalities associated with suicide exposure. In contrast, stated preference (SP) methodologies such as contingent valuation and discrete choice experiments, and revealed preference (RP) approaches leveraging observed behavioral responses, rely on ex-ante preference orderings that may systematically diverge from ex-post experiential utility. This preference-experience disparity becomes especially salient in the context of suicide, where the welfare impacts radiate through social networks via mechanisms that individuals may fail to ac-

curately forecast. The Well-being Valuation Method (WVM) has consequently emerged as methodologically superior to conventional preference-based approaches for non-market goods valuation (Dolan and Kahneman, 2008). The WVM's theoretical foundations in experienced utility measurement, combined with its capacity to capture adaptation effects and contextual factors, have established it as a robust framework for monetizing both positive and negative individual experiences. Initially focused on valuing direct experiential impacts, the method has demonstrated particular utility in quantifying the broader societal burden of mental health conditions, thereby informing evidence-based policy design. The WVM's empirical applications have expanded to encompass monetary valuations across diverse non-market domains, including specific health conditions and disease states (Ferrer-I-Carbonell and van Praag, 2002; Brown, 2015; Howley, 2017; McNamee and Mendolia, 2018), but also other fields, as for example, air pollution and natural disasters (Luechinger, 2009; Luechinger and Raschky, 2009), crime and safety (Powdthavee 2005; Moore 2006; Frey et al. 2009; Cohen 2008; Kuroki 2013; Cheng and Smyth 2015) and airport noise (Van Praag and Baarsma, 2005).

Despite ongoing debates regarding the monetization of subjective well-being differentials (Kahneman and Krueger, 2006), the Well-being Valuation Method (WVM), as a preferred alternative to SP and RP approaches for non-market goods valuation, has gained traction, as evidenced by its inclusion in the United Kingdom Treasury's Green Book for social cost-benefit analysis in 2011. This inclusion underscores a significant paradigm shift towards recognizing the broader impacts of health-related issues like suicide. This institutional adoption reflects growing recognition that conventional economic metrics may inadequately capture the complex, cascading effects on societal welfare.

## 2.2 Valuing suicide exposure using WVM

The Well-being Valuation Method (WVM) requires a randomly selected representative sample of individuals, who are asked to quantify their subjective well-being (SWB), disclose

their experiences, and provide their household income. The initial step of WVM involves estimating the SWB equation:

$$SWB_i = \alpha + \beta_{HI} HI_i + \beta_{Exp} Exp_i + \sum_{j=1}^{k} \beta_j X_{ij} + \epsilon_i \tag{1}$$

where SWB is an evaluative welfare measure, often requiring the respondent to reflect on their life and assess their life satisfaction and other domain-specific satisfactions on a scale from 0 to 10. A score of zero indicates 'not at all satisfied', while ten signifies 'completely satisfied' (OECD, 2022) OECD, 2013). Here, $HI$ represents household income, and $Exp$ is a binary indicator variable capturing exposure to suicide through knowing someone near, family, or friends who attempted or died by suicide. $X_j$ is the vector of sociodemographic and economic characteristics, and attitudes related to suicide, health, and healthcare issues.

To estimate the parameters of equation (1), one can use ordinary least squares (OLS), ordered logit, or ordered probit regression, ensuring causal estimates for the $HI$ and $Exp$ coefficients. Upon obtaining robust causal estimates, the "shadow price" of the experience is derived using two coefficients from the SWB equation: 1) $\beta_{Exp}$, representing the impact of the non-market good knowing someone NFF who attempted or died by suicide on SWB; and 2) $\beta_{HI}$, measuring the effect of household income on SWB. The relative magnitude of these parameters indicates an implicit rate of substitution MRS)between household income and the indirect experience of suicide, illustrating how much income would maintain an individual's SWB unchanged when indirectly experiencing suicide.

Specifically, the MRS between exposure to suicide and income, which provides the compensating monetary value, is estimated as:

$$MRS_{Exp,HI} = \frac{\mu_{Exp}}{\mu_{HI}} = -\frac{\beta_{Exp}}{\beta_{HI}} \tag{2}$$

The statistically significant negative coefficient indicates that exposure to suicide is associated with an average decrease in life satisfaction by $\beta_{Exp}$ units. However, it does not imply

that every individual knowing someone who attempted or died by suicide will experience a decrease in life satisfaction by $\beta_{Exp}$ units.

## 2.3 Exposure to suicide as a treatment variable

In the context of econometric analysis and program evaluation, a treatment variable is a key component in estimating causal effects and measuring the impact of the treatment on an outcome variable of interest. The treatment variable can be a binary variable, representing the exposure status of individuals to a specific treatment or intervention. It takes on two values: 1 or 0, representing the presence or absence of the treatment, respectively. Under standard treatment effect frameworks, individuals in the treatment group receive the treatment, while those in the control group do not. The treatment assignment mechanism may be determined by randomization, policy implementation, natural experiments, or other methods, depending on the research design.

Knowing someone NFF, who attempted or died by suicide can be operationalized as a treatment/shock variable and used as an indicator that captures the effect of this experience on the individual's life satisfaction (the outcome variable). The causal effect of this experience on life satisfaction can be identified by comparing the life satisfaction of individuals with experiences (the "treated" group) to those who do not have such experiences (the control group). In regression-based strategies for causal inference, conditional independence of treatment assignment is often assumed after controlling for a sufficient set of covariates. This assumption allows us to estimate the causal effect of being exposed to suicide on life satisfaction. However, OLS regressions are likely to produce biased causal estimates due to endogeneity, simultaneity, measurement error and unobserved heterogeneity. To address these complexities, confounding factors can be incorporated into the multivariate regression analysis. Including such controls reduces variance in the residuals, which lowers the standard errors of the regression coefficients and increases the precision of the estimates. However, including bad controls can also introduce biases. Therefore, proper identification and under-

standing of control variables and their specific role as confounders, colliders, or mediators is necessary for a more accurate interpretation of causal relationship between suicide exposure and life satisfaction. Controlling for pre-exposure confounders helps isolate the true effects of knowing someone NFF who attempted or died by suicide on life satisfaction.

# 3 Methodology

## 3.1 Facts and institutional settings

In Sweden, in 2021, the year when we started to collect our data from the 10,416,131 people who were registered in the country (Statistics Sweden, 2024), 1,226 died by suicide (The Public Health Agency of Sweden, 2023). Of these, 873 were men and 353 women. Eleven were children under the age of 15. A further 279 cases were registered as deaths with undetermined intent, of which many could have been suicide. Except the very young age group, the suicide rate has decreased across all other age groups during the last two decades (The Public Health Agency of Sweden, 2023). These statistics could be the result of the national action program adopted by the Swedish Parliament in 2008, which contains nine strategic areas of action to reduce the incidence of suicide, involving initiatives directed at everyone working on, or about to start working on suicide prevention within municipalities, regions, or other organizations. This coordination was implemented through a national collaboration group of authorities and a national interest group comprising researchers and NGO representatives. The implementation of these strategies occurs through multiple channels, including state stimulus grants. Since 2020, the government has allocated resources for local and regional suicide prevention work, supporting crucial initiatives such as supporting school-based prevention programs, developing continuity in health service delivery and enhancing support for those grieving. However, it is unclear how much support is provided to those close to the deceased, such as family and friends.

## 3.2 Data design and collection

We designed a structured survey that comprises sequential assessment components, beginning with the presentation of 2019 mortality statistics for suicide, pancreatic cancer, breast cancer and acute myocardial infarction in Sweden. Following this informational component, respondents participated in a resource allocation exercise, requiring them to distribute a fixed healthcare budget between two diagnostic categories, with attributes specifying both the number of saved lives and the age group. The survey collected data on demographic and socioeconomic characteristics, self-reported general life satisfaction, domain satisfactions, and attitudes toward lifesaving and resource allocation. Additionally, respondents were surveyed regarding their own experience with mental illness, pancreatic cancer, breast cancer, and acute myocardial infarction and whether they know someone near, family, or friends, who attempted or died by suicide.

Data were collected between 23 December 2021 and 16 January 2022, overleaping the period of winter holidays and coinciding with the government's announcement of additional restrictions and infection control measures to combat the rising spread of COVID-19. This contextual framework potentially influenced response patterns in our survey population of 1,000 respondents, recruited through the web panel Userneeds. The sample was constructed using stratified sampling to ensure representativeness for the Swedish adult population with respect age, gender, and region.

Ethical approval Data used in this study was collected after receiving the approval from a Regional Ethical Review Board in Sweden.

## 3.3 Descriptive Statistics

Only a small number of respondents did not complete all survey questions. While all participants answered the life satisfaction question, 6 respondents declined to answer both suicide exposure questions, and 24 indicated "do not know" for both questions. Additionally, 58 respondents who reported no suicide exposure and 7 who knew someone NFF who died by

suicide (SD) answered "do not know" regarding suicide attempts (SA) of someone NFF (see Table A2 in the Appendix).

A notably larger proportion, approximately 13.5% of respondents, did not want to disclose their household income. Table A1 in the Appendix 6 suggests that the means of the analyzed variable remain stable across the three sample sizes (columns 7-9): the full sample of 1,000 observations, the reduced sample of 865 observations (excluding those without income data), and 776 observations (further excluding those without clear yes/no answers to both exposure questions).

# 4 Results

## 4.1 Exposure to suicide

The prevalence of knowing someone near, family, or friend (NFF) who attempted or died by suicide is documented in Tables 1 and A2 in the Appendix 6. Based on survey responses, we categorized suicide exposure into distinct groups. The majority of respondents (593 individuals, 59.3% of the sample) report no exposure to suicide attempts or deaths among their NFF (Sample "No"/Column 1 in Table A1). These respondents, excluding those who withheld income information, constitute the comparison group for our estimation. Approximately a tenth of the sample (103 respondents) knows only someone who attempted suicide (Definition 1; Sample "SA"/Column 2 in Table A1), while 19 respondents know only someone who died by suicide (Definition 2; Sample "SD"/Column 2 in Table A1). Additionally, 168 respondents know both someone who attempted and someone who died by suicide (Definition 3; Sample "SA&SD"/Column 3 in Table A1), and 307 respondents know someone who either attempted or died by suicide (Definition 4). These four exposure categories serve as dummy variables in separate life satisfaction regressions.

The mean values of the individuals' demographic and socioeconomic characteristics and some of their attitudes reported in Table A1 suggest that there are differences between the

Table 1: Exposure to suicide attempt (SA) or death (SD) via someone near, family, or friends

| | SA | SD | SA and SD | SA or SD |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| A: Not restricted | | | | |
| Yes | 277 | 198 | **168** | 307 |
| No | 619 | 758 | 715 | **593** |
| Don't want to answer | 15 | 7 | - | - |
| Don't know | 89 | 37 | - | - |
| B: Only one type | | | | |
| Yes | **103** | **19** | - | - |
| N | 1000 | 1000 | 1000 | 1000 |

Notes: SA = Suicide attempt; SD=Suicide death. 104 respondents answered Don't know/Don't want to answer for at least one of the experiences.

subsample/group "No" exposure (column 1) and each exposure group/subsample (SA, SD, SA&SD), as well as variations among the exposure subsamples (columns 2-5). Notably, the "no" exposure subsample, or the comparison group, which includes individuals without any suicide exposure, has higher life satisfaction (7.03) compared to exposure groups SA, SD and SA&SD (Columns 2-4), with mean life satisfaction of 6.17, 6.68, and 6.39 respectively. This indicates a negative impact of suicide exposure on life satisfaction.

Individuals who only know someone NFF who attempted suicide (SA, column 2) report the lowest life satisfaction, are on average younger (45.53 years) compared to those who knew someone who died by suicide (56.32 years, Column 3) or those exposed to both conditions (50.71 years, Column 4). This demographic detail may correlate with their life stages and potential vulnerability to the impacts of such experiences. The SA group of individuals has a notably higher percentage of students (12% vs 6% in no exposure) and individuals on sick leave (8% vs 2%), which may accompany and possibly exacerbate the impact of being

close to suicide incidents. have a significantly higher percentage of students and individuals on sick leave. SA-individuals also reside in smaller households and show less support for allocating resources for preventing death (63% vs 49% in no exposure) and stronger support for prioritizing limited healthcare resources for youth (67% vs 58% in no exposure).

Individuals who only knew someone NFF who died by suicide (SD, column 3), have higher employment rates (63% vs 48% in no exposure) and self-employment (11% vs 4%). Education levels of these individuals is very different from the other groups: most of them have high school education (58% vs 34% for no exposure) and lower rates of higher education longer than 3 yeaars (21% vs 41%).

Nonetheless, women are disproportionately represented among those exposed to suicide, particularly in the suicide attempt only group (70%) and death only group (74%) compared to the groups with no experience (51%).

## 4.2 Exposure to suicide in the population

Based on our representative sample for the adult population, 198 out of 1,000 participants reported knowing a near family member or friend (NFF) who died by suicide. This corresponds to 19.8%. Applying this proportion to the 6,675,540 adults aged 18–70 in Sweden gives:

$$0.198 \times 6{,}675{,}540 \approx 1{,}320{,}000.$$

Thus, about 1.32 million adults in Sweden know at least one person who died by suicide. Taking in consideration that over the last decade, Sweden records about 1200 suicide deaths per year, Over the last decade, there have been about 1200 suicide deaths per year, leading to roughly 12,000 deaths over a 10-year period. Dividing the total number of adults who know a decedent (1.32 million) by this total yields the approximate average number of adult acquaintances per suicide:

$$\frac{1{,}320{,}000}{1200 \times n}.$$

Table 2 show how the estimated 1.32 million acquaintances would be spread across different numbers of years. Although it may seem that fewer acquaintances per suicide are found when considering more years, this follows from the larger total number of suicides over longer periods. When we assume the total of 1.32 million adults being constant, the ratio of acquaintances per suicide decreases as the total suicides over additional years accumulates. Thus, having fewer acquaintances per death in the multi-year calculations does not suggest fewer people are aware of suicides; it merely reflects that the same group of 1.32 million acquaintances is being spread over a growing number of total deaths.

Table 2: Estimated acquaintances per suicide death, by number of years

| **Period (years)** | **Total suicides** | **Acquaintances per death** |
|---|---|---|
| 1 | 1200 | 1100 |
| 2 | 2400 | 550 |
| 3 | 3600 | 367 |
| 4 | 4800 | 275 |
| 5 | 6000 | 220 |
| 6 | 7200 | 183 |
| 7 | 8400 | 157 |
| 8 | 9600 | 137 |
| 9 | 10800 | 122 |
| 10 | 12000 | 110 |

## 4.3 Life satisfaction correlation with other variables

The correlation matrices reported in Tables A3 − A6 in the Appendix indicate a statistically significant correlation between life satisfaction ($LS$) and *Income*, and a negative correlation between LS and exposure to suicide. The correlation is statistically significant with *SA only* ($\rho = -0.152$), *SA & SD* ($\rho = -0.105$), and *SA or SD* ($\rho = -0.14$). Although the correlation between *SD only* and $LS$ ($\rho = -0.030$) is not statistically significant, we include it in the

analysis to account for the possibility of a distinct shock arising from exposure to death by suicide.

We select additional control variables that exhibit significant correlations with *LS* and with at least one of the suicide exposure variables. For example, *Income* is positively correlated with LS but also correlates with some of the exposure variables (e.g., *SA & SD*). *Age* has positive associations with *LS*, while *Alone* is negatively associated with *LS*. We include these variables to address potential confounding and reduce omitted variable bias.

We further control for relevant demographic characteristics (*Woman*, *Immigrant*, *Children*, *Student*, *Self-employed*, *Employed*, and *Retired*) based on their correlations with *LS* or with the exposure variables. For example, *Retired* correlates strongly with *Age*, while *Employed* correlates positively with *LS* in several matrices. Including these covariates in the model mitigates unobserved heterogeneity and measurement error. However, we proceed carefully with variables that are weakly correlated or that might act as mediators or colliders, as this could introduce bias into the estimates.

We subsequently specify separate regression models for each exposure variable (*SA only*, *SD only*, *SA & SD*, *SA or SD*) to evaluate the robustness of our findings. This allows us to isolate how each type of exposure affects life satisfaction. By comparing the results across these models and examining changes in coefficient estimates and standard errors, we gain insight into the stability of the estimated causal effects. This multivariate strategy is consistent with the standard treatment effect framework, where we assume conditional independence of exposure assignment after controlling for a sufficient set of covariates.

## 4.4 The estimated value of suicide exposure

We estimate life satisfaction regressions for five model specifications separately for four samples. Each sample is constructed from the same comparison group (individuals without suicide exposure) and from one of the following exposure groups: knowing only someone who attempted suicide (SA), knowing only someone who died by suicide (SD), knowing both

cases (SA and SD), and knowing either case (SA or SD). The estimates for all parameters are reported in Tables B1 - B4 in the Appendix. Across all models and all four sample, household income has a statistically significant positive impact on life satisfaction, while exposure to suicide has a negative impact. However, the estimated coefficient for "SD only" is not statistically significant for any model specification (Table 3). Notably, the estimates for the combined exposure "SA and SD" are smaller in magnitude than those for "SA only" and "SA or SD" exposures.

Table 3: Suicide exposure impact on life satisfaction, by type of experience and model specification

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Suicide attempt (SA) only | -0.893*** | -0.821*** | -0.680*** | -0.611*** | -0.645*** |
| Suicide death (SD) only | -0.335 | -0.464 | -0.573 | -0.515 | -0.456 |
| SA and SD | -0.544*** | -0.594*** | -0.501*** | -0.513*** | -0.503*** |
| SA or SD | -0.671*** | -0.677*** | -0.592*** | -0.570*** | -0.578*** |
| Household income | | ✓*** | ✓*** | ✓*** | ✓*** |
| Socio-demographics | | | ✓ | ✓ | ✓ |
| Labor market status | | | | ✓ | ✓ |
| Attitudes | | | | | ✓ |

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Using the coefficient estimates for household income and suicide exposure, we calculate the marginal rate of substitution between suicide exposure and household income, which quantifies the monetary compensation needed to maintain constant life satisfaction. Table 4 presents the estimates for how much money would be needed to keep people's life satisfaction unchanged when they are exposed to someone NFF's suicide attempt or death. The estimated annual compensation values range from 6,400 to 9,910 euros, indicating a relatively high variation in the estimated compensation across the type of suicide exposure considered and model specifications. For example, using the simplest model specification that includes only income and suicide exposure, the annual compensation is 9,852 euros for "SA only", and 7,425 euros for both "SA and SD" experiences (column 2), but changes when controlling

for demographic and socioeconomic characteristics and attitudes to 8,234 and 8,748 euros, respectively (column 5). When not distinguishing between exposure types (SA or SD), the annual compensation ranges between 8,206 and 9,910 euros. Regardless of the variation across exposure types and model specifications, our results suggest that exposure to suicide represents a non-negligible economic burden.

Table 4: The estimated compensation for suicide exposure (in euros), by type of experience and model specification

| | (2) | (3) | (4) | (5) |
|---|---|---|---|---|
| Suicide attempt (SA) only | 9 852 | 9 277 | 8 057 | 8 234 |
| Suicide death (SD) only | 6 400 | 9 550 | 7 725 | 6 514 |
| SA and SD | 7 425 | 9 543 | 9 471 | 8 748 |
| SA or SD | 8 206 | 9 731 | 9 910 | 9 373 |

# 5 Discussion and conclusions

Using our structured web survey, we collected data on various dimensions of life experiences of the adult population in Sweden, focusing particularly on those exposed to suicide through attempts or deaths of near family or friends. Our findings support and extend previous research that has established indirect experiences of mental illness as an important factor in relation to lower life satisfaction (Andrén, 2023, 2024) and that approximately 135 people who knew the deceased are affected by each suicide death Cerel et al. (2019).

Our findings produced using the Well-being Valuation Method (WVM) add empirical evidence to the growing literature on the effects of suicide exposure and the breadth of suicide's societal impact. Our estimates of life satisfaction regressions reveal robust patterns across multiple model specifications and exposure definitions. Household income has a consistently positive and statistically significant impact on life satisfaction, exposure to suicide shows negative impacts. However, the coefficient of knowing only someone who died by suicide is not statistically significant in any specification. Using the pairs of these estimates, our com-

puted annual monetary compensation for keeping an individual's life satisfaction unchanged when exposed to someone NFF's suicide attempt or death ranges from 6,400 to 9,910 euros (Table 4). For individuals exposed to both experiences, the compensation is between 7,425 and 9,543 euros, while when not distinguishing between exposure types, the compensation range is 8,206-9,910 euros.

Our findings indicate that exposure to suicide through someone NFF's suicide attempt or death has negative consequences on life satisfaction, requiring substantial compensation to remain at pre-exposure level. Our estimates of the monetary can serve as indicators of previously unrecognized costs of distress among those who know someone who attempted or died by suicide. Our findings support the need for healthcare policies and suicide prevention strategies that incorporate these indirect impacts in economic evaluations. Our results particularly reinforce the initiatives under the Swedish national action program on suicide prevention. Ongoing measures, combined with adjustments based on our study's indications, may strengthen their impact. However, strategies that focus on educating the public and providing direct support to at-risk populations need to be continuously evaluated and carefully adapted based on ongoing research findings such as ours.

Even though out findings are informative, the limitations of our data and research design merit attention. First, the cross-sectional design with limited historical perspective precludes strong causal inferences. Second, the reliance on self-reported survey data may introduce bias. Third, the Swedish context could restrict the broader applicability of our findings. Consequentially, future studies should replicate this approach in diverse settings and estimate longer-term effects and potential interventions for those exposed to suicide by NFF who attempted or died by suicide, focusing on the exposure effects on the entire population and subgroups , taking in consideration different societal settings.

In conclusion, our findings emphasize the significance of extending the focus of suicide prevention as a public health priority to the near family and friends of those who attempted or died by suicide. The compensation values reflect the substantial economic burden linked

to knowing someone who attempted or died by suicide, which may also served as a reference point for allocating limited healthcare budget. Addressing the needs of exposed individuals through targeted policies remains crucial, but also requires continuous updating of the empirical evidence by producing results that take into consideration the new reality and its dynamics to better understand the mechanisms at play and to refine our approaches to mental health and public policy.

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# Appendix A Descriptive statistics

Table A1: Descriptive statistics by sample. Mean values

| | Exposure type | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | No | SA | SD | SA & SD | No info | All | Income | ES &Inc |
| | (1) | (2) | (3) | (4) | (5) | (7) | (8) | (9) |
| *Continous varaibles* | | | | | | | | |
| Life satisfaction (0-10) | 7.03 | 6.17 | 6.68 | 6.39 | 6.60 | 6.77 | 6.78 | 6.80 |
| Household income | 42083 | 42087 | 54474 | 42411 | 34145 | 41445 | 47913 | 48260 |
| Income equivalent | 17066 | 17650 | 20520 | 17134 | 13879 | 16804 | 20091 | 20196 |
| Age | 52.80 | 45.53 | 56.32 | 50.71 | 49.08 | 51.33 | 51.68 | 51.85 |
| *Binary variables* | | | | | | | | |
| Age-groups | | | | | | | | |
| 18-34 | 0.23 | 0.33 | 0.05 | 0.22 | 0.30 | 0.24 | 0.24 | 0.23 |
| 35-49 | 0.25 | 0.29 | 0.21 | 0.32 | 0.26 | 0.26 | 0.26 | 0.26 |
| 50-80 | 0.52 | 0.38 | 0.74 | 0.46 | 0.44 | 0.49 | 0.50 | 0.51 |
| Woman | 0.51 | 0.70 | 0.74 | 0.58 | 0.51 | 0.55 | 0.53 | 0.54 |
| Foreign-born | 0.11 | 0.13 | 0.00 | 0.10 | 0.15 | 0.12 | 0.10 | 0.11 |
| Live alone | 0.28 | 0.23 | 0.11 | 0.25 | 0.29 | 0.27 | 0.27 | 0.27 |
| Have children | 0.38 | 0.50 | 0.32 | 0.55 | 0.37 | 0.42 | 0.42 | 0.42 |
| household_members | 4.89 | 4.45 | 4.95 | 5.15 | 5.19 | 4.93 | 4.29 | 4.33 |
| Education | | | | | | | | |
| Lower | 0.07 | 0.05 | 0.11 | 0.04 | 0.04 | 0.06 | 0.06 | 0.07 |
| High school | 0.34 | 0.44 | 0.58 | 0.39 | 0.42 | 0.37 | 0.37 | 0.36 |
| Higher 1-3 years | 0.17 | 0.17 | 0.05 | 0.18 | 0.16 | 0.17 | 0.17 | 0.17 |
| Higher >3 years | 0.41 | 0.34 | 0.21 | 0.39 | 0.37 | 0.39 | 0.39 | 0.4 |
| Employment status | | | | | | | | |
| Student | 0.06 | 0.12 | 0.00 | 0.07 | 0.08 | 0.07 | 0.06 | 0.06 |
| Employed | 0.48 | 0.50 | 0.63 | 0.55 | 0.56 | 0.51 | 0.52 | 0.51 |
| Self-employed | 0.04 | 0.05 | 0.11 | 0.02 | 0.02 | 0.04 | 0.04 | 0.04 |
| Retired | 0.36 | 0.20 | 0.26 | 0.32 | 0.32 | 0.33 | 0.34 | 0.34 |
| Unemployed | 0.02 | 0.02 | 0.00 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 |
| On sick leave | 0.02 | 0.08 | 0.00 | 0.01 | 0.00 | 0.02 | 0.02 | 0.03 |
| Other | 0.02 | 0.03 | 0.00 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 |
| Prevent death regardless | | | | | | | | |
| No | 0.04 | 0.01 | 0.05 | 0.05 | 0.01 | 0.03 | 0.03 | 0.04 |
| 1-4 | 0.49 | 0.63 | 0.32 | 0.52 | 0.54 | 0.51 | 0.52 | 0.52 |
| 5-10 | 0.38 | 0.33 | 0.53 | 0.37 | 0.32 | 0.37 | 0.38 | 0.38 |
| Don't know | 0.09 | 0.03 | 0.11 | 0.07 | 0.14 | 0.09 | 0.07 | 0.07 |
| Priority youth people | | | | | | | | |
| No | 0.02 | 0.03 | 0.05 | 0.00 | 0.02 | 0.02 | 0.02 | 0.02 |
| 1-4 | 0.29 | 0.27 | 0.21 | 0.32 | 0.26 | 0.29 | 0.28 | 0.28 |
| 5-10 | 0.58 | 0.67 | 0.63 | 0.63 | 0.58 | 0.60 | 0.62 | 0.62 |
| Don't know | 0.11 | 0.03 | 0.11 | 0.05 | 0.14 | 0.09 | 0.08 | 0.07 |
| n | 593 | 103 | 19 | 168 | 117 | 1 000 | 865 | 776 |
| Share (in percent) | | | | | | | | |
| Original sample | 59.3 | 10.3 | 1.9 | 16.8 | 11.7 | | | |
| Income information | 60.0 | 11.0 | 2.2 | 16.5 | 10.3 | | | |
| Income & exposure | 66.9 | 12.2 | 2.4 | 18.4 | 11.7 | | | |

Table A2: Exposure to suicide by knowing someone near, family, or friends who attempted (SA) or died (SD) by suicide

| | Suicide death | | | | |
|---|---|---|---|---|---|
| Suicide attempt | Yes | No | DNW | DNK | Total |
| Yes | 168 | 103 | 0 | 6 | 277 |
| No | 19 | 593 | 1 | 6 | 619 |
| DNW | 4 | 4 | 6 | 1 | 15 |
| DNK | 7 | 58 | 0 | 24 | 89 |
| Total | 198 | 758 | 7 | 37 | 1,000 |

Notes: DNW = do nor want to answer; DNK = do not want to answer.

Table A3: Correlation matrix. Knowing only someone NFF who attempted suicide

| | LS | SA only | Income | Woman | Age | Immigrant | Alone | Children | Student | Self-empl | Employed | Retired | Insurance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Life satisfaction | 1.000 | | | | | | | | | | | | |
| SA only | -0.152* | 1.000 | | | | | | | | | | | |
| Income | 0.276* | -0.045 | 1.000 | | | | | | | | | | |
| Woman | -0.066 | 0.139* | -0.096 | 1.000 | | | | | | | | | |
| Age | 0.211* | -0.105* | 0.055 | -0.136* | 1.000 | | | | | | | | |
| Immigrant | 0.093 | 0.024 | 0.008 | 0.035 | -0.138* | 1.000 | | | | | | | |
| Alone | -0.196* | -0.051 | -0.610* | 0.035 | -0.021 | -0.001 | 1.000 | | | | | | |
| Children | -0.095 | 0.064 | 0.215* | 0.057 | -0.345* | 0.031 | -0.346* | 1.000 | | | | | |
| Student | -0.070 | 0.055 | -0.213* | 0.150* | -0.350* | 0.080 | 0.102 | -0.048 | 1.000 | | | | |
| Self-empl | -0.040 | 0.007 | 0.043 | -0.030 | 0.016 | 0.010 | -0.034 | -0.011 | -0.053 | 1.000 | | | |
| Employed | -0.083 | 0.036 | 0.282* | 0.118* | -0.387* | 0.061 | -0.055 | 0.361* | -0.258* | -0.200* | 1.000 | | |
| Retired | 0.213* | -0.131* | -0.108* | -0.274* | 0.610* | -0.133* | 0.012 | -0.374* | -0.189* | -0.146* | -0.719* | 1.000 | |
| Insurance | -0.138* | 0.128* | -0.207* | 0.137* | -0.031 | 0.052 | 0.041 | -0.005 | -0.056 | -0.043 | -0.212* | -0.156* | 1.000 |
| N = 614 | | | | | | | | | | | | | |

Note: * $p$ <0.01.
LS=life satisfaction; Self-empl=self employed; Insurance=unemployed, parental and sick leave covered by social insurance.

Table A4: Correlation matrix. Knowing only someone NFF who died by suicide (SD)

| | LS | SD only | Income | Woman | Age | Immigrant | Alone | Children | Student | Self-empl | Employed | Retired | Insurance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LS | 1.000 | | | | | | | | | | | | |
| SD only | -0.030 | 1.000 | | | | | | | | | | | |
| Income | 0.238* | 0.048 | 1.000 | | | | | | | | | | |
| Woman | -0.047 | 0.086 | -0.070 | 1.000 | | | | | | | | | |
| Age | 0.208* | 0.086 | 0.078 | -0.102 | 1.000 | | | | | | | | |
| Immigrant | 0.094 | -0.065 | -0.041 | 0.048 | -0.146* | 1.000 | | | | | | | |
| Alone | -0.189* | -0.077 | -0.609* | 0.031 | -0.082 | 0.043 | 1.000 | | | | | | |
| children | -0.084 | 0.019 | 0.241* | 0.055 | -0.367* | 0.027 | -0.339* | 1.000 | | | | | |
| Student | -0.060 | -0.046 | -0.233* | 0.124* | -0.353* | 0.078 | 0.149* | -0.071 | 1.000 | | | | |
| Self-empl | -0.014 | 0.062 | 0.081 | -0.023 | 0.046 | -0.008 | -0.048 | -0.020 | -0.050 | 1.000 | | | |
| Employed | -0.108 | 0.053 | 0.269* | 0.138* | -0.420* | 0.048 | -0.052 | 0.389* | -0.239* | -0.203* | 1.000 | | |
| Retired | 0.193* | -0.042 | -0.129* | -0.256* | 0.605* | -0.118* | -0.000 | -0.379* | -0.185* | -0.158* | -0.752* | 1.000 | |
| Insurance | -0.073 | -0.035 | -0.184* | 0.113* | -0.031 | 0.079 | 0.026 | 0.006 | -0.044 | -0.037 | -0.178* | -0.138* | 1.000 |
| N = 538 | | | | | | | | | | | | | |

Note: * $p$ <0.01.
LS=life satisfaction; Self-empl=self employed; Insurance=unemployed, parental and sick leave covered by social insurance.

Table A5: Correlation matrix. Both suicide exposure

| | LS | SA&SD | Income | Woman | Age | Immigrant | Alone | Children | Student | Self-empl | Employed | Retired | Insurance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Life satisfaction | 1.000 | | | | | | | | | | | | |
| SA&SD | -0.105* | 1.000 | | | | | | | | | | | |
| Income | 0.247* | 0.039 | 1.000 | | | | | | | | | | |
| Woman | -0.071 | 0.029 | -0.078 | 1.000 | | | | | | | | | |
| Age | 0.184* | -0.034 | 0.074 | -0.119* | 1.000 | | | | | | | | |
| Immigrant | 0.039 | -0.001 | -0.065 | 0.022 | -0.117* | 1.000 | | | | | | | |
| Alone | -0.238* | -0.052 | -0.607* | 0.044 | -0.071 | 0.046 | 1.000 | | | | | | |
| children | -0.040 | 0.111* | 0.247* | 0.051 | -0.363* | 0.010 | -0.357* | 1.000 | | | | | |
| Student | -0.049 | -0.042 | -0.219* | 0.137* | -0.334* | 0.094 | 0.122* | -0.072 | 1.000 | | | | |
| Self-empl | -0.026 | -0.039 | 0.093 | 0.004 | 0.024 | -0.012 | -0.064 | 0.026 | -0.045 | 1.000 | | | |
| Employed | -0.086 | 0.077 | 0.254* | 0.118* | -0.448* | 0.005 | -0.060 | 0.413* | -0.240* | -0.193* | 1.000 | | |
| Retired | 0.172* | -0.043 | -0.114* | -0.246* | 0.622* | -0.085 | 0.010 | -0.406* | -0.178* | -0.143* | -0.763* | 1.000 | |
| Insurance | -0.102* | 0.005 | -0.210* | 0.114* | -0.014 | 0.101* | 0.071 | -0.027 | -0.044 | -0.035 | -0.188* | -0.139* | 1.000 |
| N = 662 | | | | | | | | | | | | | |

Note: * $p$ <0.01.
LS=life satisfaction; Self-empl=self employed; Insurance=unemployed, parental and sick leave covered by social insurance.

Table A6: Correlation matrix. Either exposure to suicide

| | LS | SA or SD | Income | Woman | Age | Immigrant | Alone | Children | Student | Self-empl | Employed | Retired | Insurance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Life satisfaction | 1.000 | | | | | | | | | | | | |
| SA or SD | -0.146* | 1.000 | | | | | | | | | | | |
| Income | 0.258* | 0.005 | 1.000 | | | | | | | | | | |
| Woman | -0.076 | 0.096* | -0.093* | 1.000 | | | | | | | | | |
| Age | 0.170* | -0.063 | 0.057 | -0.119* | 1.000 | | | | | | | | |
| Immigrant | 0.048 | -0.004 | -0.025 | 0.012 | -0.122* | 1.000 | | | | | | | |
| Alone | -0.220* | -0.065 | -0.596* | 0.034 | -0.024 | 0.021 | 1.000 | | | | | | |
| children | -0.050 | 0.100* | 0.222* | 0.056 | -0.351* | 0.011 | -0.355* | 1.000 | | | | | |
| Student | -0.053 | 0.003 | -0.195* | 0.144* | -0.333* | 0.091 | 0.078 | -0.032 | 1.000 | | | | |
| Self-empl | -0.005 | -0.004 | 0.062 | -0.015 | 0.024 | -0.003 | -0.018 | 0.007 | -0.049 | 1.000 | | | |
| Employed | -0.064 | 0.072 | 0.274* | 0.109* | -0.404* | 0.020 | -0.073 | 0.382* | -0.256* | -0.204* | 1.000 | | |
| Retired | 0.164* | -0.102* | -0.116* | -0.247* | 0.607* | -0.096* | 0.025 | -0.394* | -0.177* | -0.142* | -0.732* | 1.000 | |
| Insurance | -0.145* | 0.063 | -0.227* | 0.118* | -0.030 | 0.073 | 0.071 | -0.033 | -0.052 | -0.042 | -0.215* | -0.149* | 1.000 |
| N = 614 | | | | | | | | | | | | | |

Note: * $p$ <0.01.
LS=life satisfaction; Self-empl=self employed; Insurance=unemployed, parental and sick leave covered by social insurance.

# Appendix B Life satisfaction regressions

Table B1: Life satisfaction regressions; Suicide attempt only

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Suicide attempt only | -0.893*** | -0.821*** | -0.680*** | -0.611*** | -0.645*** |
| Household income equivalent (in 1000 SEK) | | 0.100*** | 0.088*** | 0.091*** | 0.094*** |
| Woman | | | -0.076 | 0.050 | 0.067 |
| Age-groups (CG:18-34) | | | | | |
| 35-49 | | | -0.523** | -0.487** | -0.499** |
| 50-80 | | | 0.799*** | 0.592** | 0.579** |
| Foreign born (0/1) | | | 0.838*** | 0.861*** | 0.794*** |
| Living alone (0/1) | | | -0.331 | -0.314 | -0.250 |
| Having children (0/1) | | | -0.130 | -0.087 | -0.119 |
| Labor market status (CG: student) | | | | | |
| Employed | | | | -0.177 | -0.186 |
| Self-employed | | | | -0.649 | -0.621 |
| Retired | | | | 0.257 | 0.273 |
| Unemployed | | | | -0.161 | -0.105 |
| On sick leave | | | | -1.031* | -1.009* |
| Other | | | | -0.901 | -0.776 |
| Prevent death regardless QoL (CG: no) | | | | | 0.210 |
| Priority youth (CG: no) | | | | | -1.291** |
| Free decision to live (CG: no) | | | | | -0.714* |
| _cons | 7.019*** | 5.030*** | 5.033*** | 5.045*** | 6.262*** |
| N | 614 | 614 | 614 | 614 | 614 |
| adj. R2 | 0.022 | 0.093 | 0.173 | 0.181 | 0.196 |

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B2: Life satisfaction regressions; Suicide death only

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Suicide death only | -0.335 | -0.464 | -0.573 | -0.515 | -0.456 |
| Household income equivalent (in 1000 SEK) | | 0.087*** | 0.072*** | 0.080*** | 0.084*** |
| Woman | | | -0.087 | 0.026 | 0.049 |
| Age-groups (CG:18-34) | | | | | |
| 35-49 | | | -0.485* | -0.428 | -0.428 |
| 50-80 | | | 0.833*** | 0.657** | 0.691** |
| Foreign born (0/1) | | | 0.834*** | 0.863*** | 0.824*** |
| Living alone (0/1) | | | -0.330 | -0.302 | -0.216 |
| Having children (0/1) | | | -0.035 | 0.018 | 0.005 |
| Labor market status (CG: student) | | | | | |
| Employed | | | | -0.302 | -0.353 |
| Self-employed | | | | -0.548 | -0.595 |
| Retired | | | | 0.104 | 0.040 |
| Unemployed | | | | -0.217 | -0.369 |
| On sick leave | | | | -0.649 | -0.673 |
| Other | | | | -1.851** | -1.839** |
| Prevent death regardless QoL (CG: no) | | | | | 0.141 |
| Priority youth (CG: no) | | | | | -0.975* |
| Free decision to live (CG: no) | | | | | -0.603 |
| _cons | 7.019*** | 5.283*** | 5.304*** | 5.321*** | 6.179*** |
| N | 538 | 538 | 538 | 538 | 538 |
| adj. R2 | -0.001 | 0.055 | 0.136 | 0.141 | 0.153 |

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B3: Life satisfaction regressions; Suicide attempt and death

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Suicide attempt and death | -0.544*** | -0.594*** | -0.501*** | -0.513*** | -0.503*** |
| Household income equivalent (in 1000 SEK) | | 0.096*** | 0.063*** | 0.065*** | 0.069*** |
| Woman | | | -0.198 | -0.123 | -0.057 |
| Age-groups (CG:18-34) | | | 0.000 | 0.000 | 0.000 |
| 35-49 | | | -0.521** | -0.463* | -0.426* |
| 50-80 | | | 0.691*** | 0.608** | 0.608** |
| Foreign born (0/1) | | | 0.487* | 0.531** | 0.487* |
| Living alone (0/1) | | | -0.656*** | -0.653*** | -0.562** |
| Having children (0/1) | | | 0.102 | 0.143 | 0.091 |
| Labor market status (CG: student) | | | | | |
| Employed | | | | -0.268 | -0.359 |
| Self-employed | | | | -0.786 | -0.864 |
| Retired | | | | -0.026 | -0.058 |
| Unemployed | | | | -0.970 | -0.962 |
| On sick leave | | | | -0.738 | -0.792 |
| Other | | | | -1.245 | -1.238 |
| Prevent death regardless QoL (CG: no) | | | | | 0.222 |
| Priority youth (CG: no) | | | | | -1.056* |
| Free decision to live (CG: no) | | | | | -0.402 |
| _cons | 7.019*** | 5.111*** | 5.732*** | 5.887*** | 6.544*** |
| N | 662 | 662 | 662 | 662 | 662 |
| adj. $R^2$ | 0.009 | 0.071 | 0.135 | 0.137 | 0.152 |
| adj. R2 | -0.001 | 0.055 | 0.136 | 0.141 | 0.153 |

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B4: Life satisfaction regressions; Suicide attempt or death

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Suicide attempt or death | -0.671*** | -0.677*** | -0.592*** | -0.570*** | -0.578*** |
| Household income equivalent (in 1000 SEK) | | 0.099*** | 0.073*** | 0.069*** | 0.074*** |
| Woman | | | -0.164 | -0.087 | -0.034 |
| Age-groups (CG:18-34) | | | | | |
| 35-49 | | | -0.527** | -0.510** | -0.485** |
| 50-80 | | | 0.647*** | 0.552** | 0.523** |
| Foreign born (0/1) | | | 0.538** | 0.575** | 0.511** |
| Living alone (0/1) | | | -0.603*** | -0.617*** | -0.561*** |
| Having children (0/1) | | | 0.020 | 0.041 | -0.044 |
| Labor market status (CG: student) | | | | | |
| Employed | | | | -0.121 | -0.189 |
| Self-employed | | | | -0.300 | -0.319 |
| Retired | | | | 0.084 | 0.080 |
| Unemployed | | | | -0.897 | -0.728 |
| On sick leave | | | | -1.106** | -1.139** |
| Other | | | | -0.578 | -0.482 |
| | | | | | |
| Prevent death regardless QoL (CG: no) | | | | | 0.515 |
| Priority youth (CG: no) | | | | | -1.303** |
| Free decision to live (CG: no) | | | | | -0.590* |
| _cons | 7.019*** | 5.036*** | 5.533*** | 5.703*** | 6.510*** |
| N | 789 | 789 | 789 | 789 | 789 |
| adj. R2 | 0.020 | 0.086 | 0.143 | 0.147 | 0.163 |

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

# Appendix C: Survey Questionnaire

**Appendix A1** The Web-survey "**Priority-setting in health care"**

**1. You are**

- Woman
- Man
- None of above
- Don't want to answer

**2. Your age**

**3. Your labor market status**

- Student
- Employee
- Self-employed
- Retired
- Looking for job
- On leave due to sickness
- Other

**How do you think one should prioritize between different measures in health care that save lives?**

We are interested to know how you think one should prioritize between different measures in health care that save lives. We will focus on four causes of death: pancreatic cancer, breast cancer, suicide and acute heart attack. In Sweden almost 10,000 people died in 2019 due to one of these four causes. See more detailed statistics below.

| | | Age group | | | | |
|---|---|---|---|---|---|---|
| | Total | 0-19 | 20-39 | 40-59 | 60-79 | 80- |
| Pancreas cancer | 1922 | 0 | 2 | 142 | 1138 | 640 |
| Breast cancer | 1362 | 0 | 20 | 237 | 579 | 526 |
| Suicide | 1269 | 50 | 402 | 416 | 309 | 92 |
| Acute heart attack | 5234 | 0 | 15 | 312 | 2078 | 2829 |

**To prioritize and choose only one alternative of new treatment methods**

We now want to know how you, if you were a decision maker, would prioritize between different new treatment methods that reduce the risk of death from pancreatic cancer, breast cancer, suicide and death from acute heart attack.

Assume that all treatments have **the same total cost**.

We will describe different treatments that reduce the number of deaths for **a given age group** and **a given cause of death**. Due to a limited budget, only one option can be selected.

The treatment is expected to reduce the number of deaths as follows:

| | Alternative | |
|---|---|---|
| | **A** | **B** |
| **Number of lives saved** | 2 | 4 |
| **Cause of death** | Breast cancer | Suicide |
| **Age-group** | 35-60 | 15-30 |

Indicate **which alternative** you think you would choose if you were a decision maker

☐ **A** ☐ **B**

NB: the Table above is one of the 16 choice sets, varying the number of saved lives, the cause of death (pancreas cancer, breast cancer, suicide and acute heart attack) and age-group (15-30; 35-60; 65-80); 6 choice sets were randomly assigned to each respondent.

**4. Did you suffer from**

| | Yes | No | Don't want to answer | Don't know |
|---|---|---|---|---|
| Pancreas cancer | ☐ | ☐ | ☐ | ☐ |
| Acute heart attack | ☐ | ☐ | ☐ | ☐ |
| Mental disorder | ☐ | ☐ | ☐ | ☐ |
| Breast cancer | ☐ | ☐ | ☐ | ☐ |

**5. Has someone in your family/relatives or close friend been affected of**

| | Yes | No | Don't want to answer | Don't know |
|---|---|---|---|---|
| Pancreas cancer | ☐ | ☐ | ☐ | ☐ |
| Acute heart attack | ☐ | ☐ | ☐ | ☐ |
| Mental disorder | ☐ | ☐ | ☐ | ☐ |
| Breast cancer | ☐ | ☐ | ☐ | ☐ |

**6. Has someone in your family/relatives or close friend tried to commit suicide?**

☐ Yes
☐ No
☐ Don't want to answer
☐ Don't know

**7. Has someone in your family/relatives or close friend died from**

| | Yes | No | Don't want to answer | Don't know |
|---|---|---|---|---|
| Pancreas cancer | ☐ | ☐ | ☐ | ☐ |
| Acute heart attack | ☐ | ☐ | ☐ | ☐ |
| Suicide | ☐ | ☐ | ☐ | ☐ |
| Breast cancer | ☐ | ☐ | ☐ | ☐ |

**8. To what extent do you think that a person can influence her/his risk of suffering from** (0 = not at all, 10 = to a very high degree)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pancreas cancer | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Acute heart attack | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Mental disorder | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Breast cancer | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**9. How much do you agree with the following statements?**
(0 = do not agree at all; 10 = completely agree)
**When choosing between different alternatives, one should prioritize the alternative that……**
(**9.1**)…prevents most deaths, regardless of which quality of life that becomes the result or how old individual is.
(**9.2**) …is expected to save the most years of life, which means that younger generally are prioritized beforethe elderly.
(**9.3**)… …is focused on the most acute cases, even if more people would benefit from the treatment of milder cases.
(**9.4**)… is focused on treating patients who already developed a disease instead of preventing a future disease state .
(**9.5**)…is focused on treating conditions that the patient himself did not contribute to through his lifestyle instead of treating conditions that the patient contributed to by their lifestyle.

**10. To what extent do you agree with the following statements?**
(0 = does not agree at all; 10 = totally agree)
(**10.1**) Each individual should be allowed to decide for himself/herself when he/she wants to end his/her life.
(**10.2**) Society should implement powerful measures to reduce the number of suicides.

**11. During the last year, all things considered, how satisfied are you with...**

(0 = Completely dissatisfied ... 10 = Completely satisfied).

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| your life as a whole | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| your income | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| your family | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| your friends | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| your health | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**12. What is your highest level of education?**

- ☐ Primary school education
- ☐ High school or folk high school education
- ☐ Higher education (under three years)
- ☐ Higher education (three years or more)

**13. How many people are included in your household?**

**14. How many members of your household are under 18 years of age?**

**15. How much is your household's total income before tax per month? (in SEK)**

- ☐ <20000
- ☐ 20000-29999
- ☐ 30000-39999
- ☐ 40000-49999
- ☐ 50000-59999
- ☐ 60000-69999
- ☐ 70000-79999
- ☐ >80000
- ☐ vill ej ange

**16. Your country of birth**

- ☐ Sweden
- ☐ Another European country
- ☐ Not an European country