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Original article

Death by request in Switzerland: Posttraumatic stress disorder and complicated grief after witnessing assisted suicide

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ABSTRACT

Background: Despite continuing political, legal and moral debate on the subject, assisted suicide is permitted in only a few countries worldwide. However, few studies have examined the impact that witnessing assisted suicide has on the mental health of family members or close friends.
Methods: A cross-sectional survey of 85 family members or close friends who were present at an assisted suicide was conducted in December 2007. Full or partial Post-Traumatic Distress Disorder (PTSD; Impact of Event Scale–Revised), depression and anxiety symptoms (Brief Symptom Inventory) and complicated grief (Inventory of Complicated Grief) were assessed at 14 to 24 months post-loss.
Results: Of the 85 participants, 13% met the criteria for full PTSD (cut-off $\geq$ 35), 6.5% met the criteria for subthreshold PTSD (cut-off $\geq$ 25), and 4.9% met the criteria for complicated grief. The prevalence of depression was 16%; the prevalence of anxiety was 6%.
Conclusion: A higher prevalence of PTSD and depression was found in the present sample than has been reported for the Swiss population in general. However, the prevalence of complicated grief in the sample was comparable to that reported for the general Swiss population. Therefore, although there seemed to be no complications in the grief process, about 20% of respondents experienced full or subthreshold PTSD related to the loss of a close person through assisted suicide.

1. Introduction

Assisted suicide and euthanasia for terminally ill patients are punishable by law almost everywhere except Switzerland, the Netherlands, Belgium and the U.S. states of Oregon and Washington. Assisted suicide is generally defined as the prescribing or supplying of drugs with the explicit intention of enabling the patient to end his or her own life. In euthanasia, in contrast, it is the physician who administers the lethal drug. In the Netherlands and Belgium, physician-assisted euthanasia is legally permitted, meaning that physicians are allowed to administer drugs to end a patient's life at his or her request. In Switzerland, in contrast, euthanasia is punishable by imprisonment (Article 114 of the Swiss penal code). It is only in the absence of self-serving motives that assisting another person's suicide is permissible. Physicians in Switzerland are therefore allowed to prescribe or supply a lethal dose of barbiturates with the explicit intention of enabling a patient they have examined to end his or her own life. However, most assisted suicides in Switzerland are conducted with the assistance of non-profit organisations [23]. These right-to-die organisations offer personal guidance to members suffering diseases with "poor outcome" or experiencing "unbearable suffering" who wish to die.

The two largest right-to-die organisations in Switzerland are Exit Deutsche Schweiz and Dignitas. Membership of Exit Deutsche Schweiz is available only for people living in Switzerland, whereas Dignitas is also open to people from abroad. Exit Deutsche Schweiz has about 50000 members, and between 100 and 150 people die each year with the organisation's assistance. In comparison, Dignitas has about 6000 members, most of whom live abroad. A member who decides to die must first undergo a medical examination. The physician then prescribes a lethal dose of barbiturates, and the drugs are stored at the Exit headquarters until the day of use. Usually, the suicide takes place at the patient's home. On the day the member decides to die, an Exit volunteer collects the medication and takes it to the patient's home. There, he or she hands the patient the fluid to swallow. If the patient is incapable of swallowing the barbiturate, it can be self-administered by gastrostomy or intravenously [4]. After the patient has died, the Exit volunteer notifies the police. All assisted suicides are reported to the authorities. Deaths through assisted suicide are recorded as unnatural deaths and investigated by the Institute of Legal Medicine.

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Bosshard et al. evaluated 748 cases of suicide assisted by Exit Deutsche Schweiz between 1990 and 2000 [5]. These assisted suicides amounted to 0.1% of total deaths and 4.8% of total suicides in Switzerland. The mean age at death was 72 years in women and 73 years in men. Most of the deceased suffered from cancer, followed by neurological diseases, cardiovascular/respiratory disease and HIV/AIDS. Assisted suicide was more often facilitated in urbanized and predominantly protestant parts of Switzerland. The annual number of deaths assisted by Exit tripled during the study period.

Scientific research and political discussion has focused on the ethical and legal implications of intentionally ending a person's life. By contrast, there has been very little research into the psychological impact of witnessing the assisted suicide of a family member or friend. The DSM-IV defines an event as traumatic if it includes the experience of or confrontation with actual or threatened death [7], as is the case for relatives and friends who witness an assisted suicide. The attendant police investigations and legal proceedings may further increase the psychological stress to which these bereaved individuals are exposed. Assisted suicide can be considered an unnatural death, and unnatural death has shown to be a risk factor for bereaved family members to develop PTSD and depression [9]. Moreover, bereaved relatives and friends may experience ambivalent feelings about the decision process and way the loved one chose to die.

However, bereavement after assisted suicide may differ from bereavement after suicide in several respects. The death may not be unexpected, and the bereaved person may have the opportunity to say goodbye to the dying person [19]. The quality of death is predictable and its time is predetermined. Nevertheless, images and intrusions relating to the dying itself may cause stress-related symptoms. To our knowledge, only one study in this field has been published. Carried out in the Netherlands, it examined the psychological impact of euthanasia on bereaved family and friends [19]. This cross-sectional study assessed the grief reactions and PTSD symptoms of 189 bereaved family members and friends of terminally ill cancer patients who died by euthanasia. This group was compared with a group of 316 bereaved family members of cancer patients who died naturally. The results showed that the percentage of bereaved family and friends who fulfilled the criteria for complicated grief (CG) in the euthanasia group (2.1%) was significantly lower than in the other group (5.7%). Euthanasia was still associated with less severe symptoms and reactions after adjustment for educational level. However, adjustment for the possibility of "saying goodbye" to the deceased considerably weakened the association between cause of death and grief symptoms or PTSD reactions. One explanation for these results may be that accompanying a protracted natural death from cancer can be very stressful and that images of loved ones dying in agony can haunt bereavement. Other studies with family members of patients who died in intensive care have also found high levels of PTSD and CG [1,2,18]. Anderson et al. [1] found that 46% of the next of kin of patients who died in intensive care fulfilled the criteria for CG six months after the death, as measured by the Inventory of Complicated Grief [16]. A study evaluating the prevalence of psychiatric illness in the next of kin of patients who died in the intensive care unit found similar results: 5% suffered CG and 22% subthreshold CG 8 months after the death, as measured by the Inventory of Complicated Grief–Revised [18].

Despite the ongoing debate on the legal aspects of assisted suicide, there has been very little research into its psychological impact. Does assisted suicide have the same psychological impact on bereaved family members and friends as reported for euthanasia in the Dutch study? Based on the findings of Swarte et al., we hypothesized that a Swiss sample of bereaved family members and friends who had lost a significant person through assisted suicide would be at a similar risk of developing CG.

2. Subjects and methods

In November 2007, we conducted a cross-sectional study with the right-to-die organisation Exit Deutsche Schweiz. Exit's records of all deaths by assisted suicide include information on those present at the death. We identified 146 people who had died with the support of the organisation between October 2005 and September 2006. Of this group, 21 had died with no family members or friends as witness. In 14 cases, the addresses of the witnesses were not recorded. A total of 229 relatives and friends were recorded as being present at the death of the remaining 111 deceased persons. We attempted to contact these witnesses by mail, asking them to complete and return an anonymous written questionnaire. The study was conducted following the ethical standards of the German and Swiss psychological associations. Formal approval of the project was not necessary as strict standards of voluntariness, confidentiality and respondent protection were observed. Correct mailing addresses were available for only 167 witnesses. Of the 167 immediate family members (partner, parent, child, or sibling) and friends who were eligible for the study, 4 refused to participate, 78 did not respond, and 85 (51%) returned the questionnaire.

3. Measurement of outcomes

Beside demographic items, the questionnaire contained standard self-report measures to assess the prevalence of symptoms of PTSD, CG, depression, anxiety and general well-being in respondents. The demographic variables assessed included respondents' age, sex, educational level, marital status and employment status. Further, we assessed variables regarding the deceased person (e.g., time since death, age at death, duration of disease, medical diagnosis and duration of membership of Exit Deutsche Schweiz).

Symptoms of PTSD were evaluated using the Impact of Event Scale–Revised (IES-R [22]; German translation [13]). This 22-item measure specifically assessed the extent to which respondents were distressed by witnessing the death of their loved one and related symptoms of intrusion, avoidance and arousal experienced in the past week on a 4-point Likert scale (0, 1, 3, 5). Internal consistency in our sample was $\alpha = 0.85$ for Intrusion, $\alpha = 0.81$ for Avoidance and $\alpha = 0.87$ for Hyperarousal. Neal et al. found that a cut-off score of 35 on the IES (which combines the Avoidance and Intrusion subscales) had the highest predictive value for PTSD [14]. The German version of the IES-R has satisfactory psychometric characteristics.

CG was measured with the Inventory of Complicated Grief-SF (ICG) [15]. The original ICG comprises 34 items. Our short version (Forstmeier and Maercker [8]) included only items assessing the refined consensus criteria [15,17]: one on the triggering event (death of a significant other; criteria A1), four on separation distress (criterion A2), eight on traumatic distress (criterion B), one on duration of more than 6 months (criterion C), and one on disturbance causing clinically significant impairment (criterion D). A reduced 4-point response scale (1 = no/never to 4 = always) was applied. Internal consistency in this sample was $\alpha = 0.81$ for the Separation Distress subscale and $\alpha = 0.82$ for the Traumatic Distress subscale. Based on Prigerson et al. [17], we diagnosed CG if scores on at least three of the four symptoms of Separation Distress were greater than or equal to 3 and scores on at least four of the eight symptoms of Traumatic Distress were greater than or equal to 3.

The short form of the SCL-90 (Brief Symptom Inventory [BSI] [6]) was used to assess symptoms of depression and anxiety. Its subscales are considered to be valid tools for screening depression and anxiety. Each BSI subscale lists six symptoms. The Anxiety subscale includes symptoms such as nervousness and feeling

fearful; the Depression subscale includes symptoms such as feeling hopeless about the future. Each item was rated on a 5-point Likert scale (0 = not at all, 4 = extremely). BSI subscale scores are computed by taking the average of the responses to the individual symptoms, as long as at least five of the six symptoms have been rated. In this analysis, we calculated norm-based scores by applying gender-specific general population means and standard deviations for an adult, non-patient sample. The normed scores had a mean of 50 and a standard deviation (SD) of 10 in the general population. Normed BSI scores ≥ 63 have been defined as indicating high distress. Internal consistency in this sample was $\alpha = 0.90$ for depression and $\alpha = 0.80$ for anxiety.

General physical and psychological functioning was measured using the SF-12 [21], a 12-item scale derived from the 36-item health status scale (SF-36) used in the Medical Outcomes Study. The SF-12 includes separate components for physical and mental health; both are used in this study as separate continuous variables. Scores were normalized to a general population mean (SD) of 50 [16], with higher scores indicating better health.

4. Data analysis

Prevalence of PTSD, CG, depression, anxiety and other characteristics was calculated and analyzed using SPSS version 15.0 (SPPS Inc, Chicago). Frequencies and standard deviations were calculated for descriptive data, *t*-tests were used to compare mean values, and chi-square tests were used for categorical data. Correlations were used to assess relationships between the dependent and independent variables.

5. Results

5.1. Demographic characteristics

Table 1 describes the sample characteristics. The sample consisted of 48 women (56.5%) and 37 men. Ages ranged from 25 to 89 years (M = 60.15; SD = 13.42; median = 61.25). The duration of the loved one's disease prior to death ranged from 1.5 months to 40 years (M = 6.4; SD = 7.9; median = 3.25) and the average time since death at the point of assessment was about 19 months (median = 19.00). Fifty-two percent of patients had been diagnosed with cancer, 36.5% with age-related, nonfatal medical conditions; 14% with cardiac disease; 6% with Alzheimer's/dementia; and 3.5% with mental disorders. The average duration of membership of Exit Deutsche Schweiz before death was 12.11 years (SD = 8.86; range: 3 weeks to 24 years; median: 12.50 years).

Table 1
Characteristics of study participants and deceased persons ($n = 85$).

Characteristics	No. (%)
Study participants	
Age, in years: mean (SD; range)	60.15 (13.42; 25–89)
Sex (female)	48 (56.5)
Marital status	
Single	6 (7.1)
Married	47 (55.3)
Widowed	26 (30.6)
Divorced	6 (7.1)
Highest educational level	
Primary education	6 (7.1)
Secondary education	45 (52.9)
University degree	26 (30.6)
Doctoral degree	8 (9.4)
Deceased's relationship to respondent	
Father/mother	40 (47.1)
Partner	28 (32.9)
Child	2 (2.4)
Sibling/friend	15 (17.6)
Deceased persons	
Age, in years: mean (SD)	77.36 (13.91)
Sex (female)	41 (48.2)

5.2. Symptoms of posttraumatic stress

As shown in Table 2, participants' mean scores were 10.3 (SD = 7.98) for symptoms of intrusions, 4.7 (SD = 6.60) for symptoms of avoidance, and 5.0 (SD = 6.9) for symptoms of hyperarousal. In accordance with best practice for analysing data from the IES-R, *t*-tests were used to test gender differences [3]. No significant gender differences in PTSD symptomatology were found. The prevalence of full PTSD using the cut-off score ≥ 35 was 13% ($n = 10$); the prevalence of subthreshold PTSD using the cut-off score ≥ 25 was 6.5% ($n = 5$). No significant gender differences in diagnoses of full PTSD, χ^2 (df = 1, $n = 77$) = 0.09, $p = 1.00$, or subthreshold PTSD, χ^2 (df = 1, $n = 77$) = 0.22, $p = 0.63$, were found. The Pearson correlation for the Intrusion subscale (rs = −0.26) and the Hyperarousal subscale (rs = −0.29) showed significant negative correlations with the age of the deceased. The Avoidance subscale showed a significant negative correlation with the duration of membership of the right-to-die organisation (rs = −0.30). Duration of disease was not significantly related to posttraumatic stress symptoms. Further, we tested for differences in PTSD symptomatology between respondents who had lost a partner or a parent. No significant differences in diagnoses of full

Table 2
Means scores for posttraumatic stress disorder, complicated grief, depression, anxiety and general functioning.

	Total M (SD) ($n = 85$)	Male M (SD) ($n = 37$)	Female M (SD) ($n = 48$)	*t*-test for gender difference (p values)	df
IES-R intrusion	10.36 (7.99)	11.34 (8.62)	9.16 (7.06)	0.22	78
IES-R avoidance	4.68 (6.60)	5.06 (6.60)	4.17 (6.66)	0.55	79
IES-R hyperarousal	5.00 (6.92)	5.61 (7.61)	4.25 (5.97)	0.38	78
ICG-separation distress	7.24 (3.07)	7.11 (2.89)	7.34 (3.23)	0.73	81
ICG-traumatic distress	10.53 (3.97)	10.86 (4.22)	10.27 (3.80)	0.51	81
BSI-depression	2.28 (3.96)	2.64 (4.24)	1.83 (3.60)	0.36	79
BSI-anxiety	1.75 (2.55)	1.80 (2.53)	1.69 (2.61)	0.85	79
SF-12 mental health	46.09 (5.39)	45.23 (6.19)	47.13 (4.09)	0.19	83
SF-12 physical health	42.19 (4.07)	42.86 (4.86)	41.37 (2.68)	0.02*	83

IES-R: Impact of Event Scale–Revised; ICG: Inventory of Complicated Grief; BSI: Brief Symptom Inventory; SF-12: Short-Form Health Survey; *t*-test for independent samples, two-tailed.
* $p < 0.05$.

Table 3
Intercorrelations between posttraumatic stress disorder, complicated grief, depression, anxiety and characteristics of the deceased.

	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0
1. IES-intrusion	1									
2. IES-avoidance	0.64**	1								
3. IES-hyperarousal	0.67**	0.68**	1							
4. ICG-separation distress	0.61**	0.53**	0.73**	1						
5. ICG-traumatic distress	0.55**	0.52**	0.76**	0.74**	1					
6. BSI-depression	0.41**	0.27*	0.50**	0.58**	0.65**	1				
7. BSI-anxiety	0.32**	0.20	0.33**	0.35**	0.45**	0.69**	1			
8. Age of the deceased	−0.26*	−0.12	−0.29**	−0.50**	−0.44**	−0.26*	−0.09	1		
9. Duration of the disease	−0.14	−0.11	−0.10	−0.13	−0.16	−0.09	−0.02	0.01	1	
10. Duration of membership	−0.08	−0.30*	−0.10	−0.19	−0.23	−0.09	−0.04	0.29*	−0.02	1

IES-R: Impact of Event Scale–Revised; ICG: Inventory of Complicated Grief; BSI: Brief Symptom Inventory.
* $p < .05$.
** $p < .001$.

PTSD, χ^2 (df = 1, n = 61) = 2.08, ρ = 0.14, or subthreshold PTSD, χ^2 (df = 1, n = 61) = 0.20, ρ = 0.65, were found.

5.3. Complicated grief (CG)

Our sample showed relatively low CG symptom severity on both assessment instruments. As shown in Table 2, participants' mean scores were 7.24 (SD = 3.07, median = 6.00) on the Separation Distress subscale of the ICG, and 10.53 (SD = 3.97, median = 9.00) on the Traumatic Stress subscale of the ICG. The prevalence of CG was 4.9% (n = 4, 95% confidence interval) according to the Prigerson et al. consensus criteria [17]. As shown in Table 3, the CG subscales showed significant negative correlations with the age of the deceased (rs = −0.44/−0.50). Duration of disease and duration of membership of the right-to-die organisation were not significantly related to CG symptoms. We tested for differences in CG symptom severity between respondents who had lost a partner or a parent. The results showed that these two groups differed significantly, χ^2 (df = 1, n = 65) = 4.71, ρ = 0.03.

5.4. Depression, anxiety and general functioning

Participants scored a mean of 2.2 (SD = 3.96) on the Depression subscale and 1.7 (SD = 2.5) on the Anxiety subscale of the BSI (Table 2). General health was measured by the Physical Functioning and Mental Health subscales of the SF-12. Mean scores were 42.1 (SD = 4.0) on physical functioning and 46.0 (SD = 5.3) on mental health. There were no significant gender differences in depression, anxiety or general mental health scores. Women reported significantly better physical functioning than men. The prevalence of depression was 16% (n = 13); the prevalence of anxiety was 6% (n = 5). Twenty-two percent (n = 16) of respondents reported clinically relevant impaired physical health and 8% (n = 6) reported impaired general mental health. There were no significant gender differences in diagnoses of depression, anxiety or general functioning. We again tested for differences between respondents who had lost a partner or a parent, and found significant differences between the groups in diagnoses of depression, χ^2 (df = 1, n = 65) = 6.21, ρ = 0.01, and anxiety, χ^2 (df = 1, n = 66) = 4.83, ρ = 0.02.

5.5. Comment

As far as we are aware, little previous research has addressed the prevalence of mental health problems in the relatives of patients who use assisted suicide, or the factors contributing to these problems. In this cross-sectional study, 13% of bereaved survivors met the criteria for full PTSD, 6.5% for subthreshold PTSD, 4.9% for CG and 16% for depression. A comparable epidemiological study of elderly people (n = 570) in Switzerland assessed the prevalence of trauma and bereavement-related stress disorders [11]. The Zurich Older Age Study was a random sample of older, not specifically bereaved people (65–96 years) stratified for age, gender and living situation. The sample was provided by the residents' registration office of the city of Zurich. A two-phase recruitment process was used, and interviews were conducted by telephone. This study of the general elderly population in Switzerland reported lower prevalence rates of PTSD (0.7%) and subthreshold PTSD (4.2%) than were found for our respondents. Unfortunately, the Dutch euthanasia study did not report prevalence rates of PTSD [19], meaning that no comparison of posttraumatic stress symptoms across the two samples is possible.

Further, the bereaved family members and friends in our cross-sectional study showed a low overall level of CG compared with other samples in which the same assessment instruments were used [8,20,10]. The prevalence of CG after assisted suicide was 4.9% as measured by Prigerson et al.'s diagnostic criteria. The epidemiological study of elderly people in Switzerland using the same instruments [8] found similar prevalence rates of CG after a major bereavement. Specifically, the conditional probability of developing CG after bereavement according to the Inventory of Complicated Grief–Revised [15] was 4.6%. Findings from a representative German population-based (n = 2520) sample spanning all age groups from 14 to 95 years showed a conditional prevalence of developing CG after major bereavement of 6.7% [10]. However, CG prevalence rates in the Dutch euthanasia study [19] were much lower. Only 2.1% of bereaved family and friends of individuals who died by euthanasia met the criteria for CG, compared with 5.7% of those in a control group whose loved ones died naturally of cancer. One important factor that may have influenced this result is that, relative to the control group, a lesser percentage of respondents in the euthanasia group were partners, children or siblings of the patients. Instead, there was a higher percentage of "others" (e.g., cousins, in-laws, friends) in the euthanasia group, whereas the control group included more first and second grade relatives. These different kinship relations to the deceased may have impacted the findings substantially and explain the different levels of prevalence rates in the two studies. Indeed, having lost a child or a spouse is known to be a strong predictor for developing CG [10].

Given the critical differences between euthanasia and assisted suicide, however, it is questionable whether the results of the Dutch euthanasia study and our study on assisted suicide study in Switzerland are directly comparable. In assisted suicide, the patient administers the fatal drug him- or herself; in euthanasia, it is the physician performs the fatal action.

Further, we examined physical health and depression. Twenty-two percent of the respondents in our study were found to have clinically relevant impairments in physical health and 16% were diagnosed with depression. In the Zurich Older Age Study, the prevalence rate was 2.3% for major depressive disorder and 9.3% for subsyndromal depression [12]. Therefore, participants in this assisted suicide study showed a higher prevalence rate of depression than did a comparable sample.

Finally, in terms of characteristics of the deceased, analyses of the duration of the disease and the duration of membership of the right-to-die organisation showed no significant correlations with CG symptoms. Only the age of the deceased was significantly related to CG and PTSD symptoms.

Our study has several limitations. First, as we did not include a control group of respondents who lost a loved one by natural death, we cannot determine whether levels of PTSD, depression and anxiety would be similar in a matched control group. A prospective longitudinal study would provide better insights into time effects in the long-term symptoms of PTSD, depression and anxiety. Second, the participants may be partly mutually dependent because they may be relatives or friends of the same deceased person. As all questionnaires were completed anonymously, this possible dependency could not be considered in the statistical analysis. Further, we were able to recruit only about 37% of the family members and friends of individuals who died during the study period.

6. Conclusion

In conclusion, the findings suggest that witnessing death by assisted suicide impacts the mental health of family members and friends. About 20% of our respondents had full or partial PTSD and 16% had symptoms of depression after about 19 months after the death. Witnessing the unnatural death of a significant person thus seems to have a strong impact on the bereaved, which may lead to severe mental health problems at 14 to 24 months post-loss. Our findings suggest that relatives and family members who witness assisted suicide need to be better informed about and prepared for its possible consequences it for their mental health. Additionally, right-to-die organizations should offer them professional help focused on trauma-related symptoms. At the same time, the present findings suggest that witnessing death by assisted suicide has only a moderate impact on the grief process of family members and friends. The prevalence rates for CG observed in the present sample are within the probability range of the Prigerson et al. criteria found in comparable epidemiological studies in Switzerland and Germany.

Conflict of interest statement

None

Authors' contributions

B.W. planned and initiated the study. B.W. and A.M. carried out analysis and interpretation of data, and drafted the manuscript. J.M. drafted the manuscript. All authors read and approved the final manuscript.

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