



Reducing suicides through an alliance against depression?

Bettina Hübner-Liebermann, M.Sc.^{a,*}, Tanja Neuner, M.Sc.^a, Ulrich Hegerl, M.D., Ph.D.^c,
Göran Hajak, M.D., Ph.D.^a, Hermann Spießl, M.D., Ph.D.^{a,b}

^aDepartment of Psychiatry and Psychotherapy, University of Regensburg, 93042 Regensburg, Germany

^bDepartment of Psychiatry and Psychotherapy, State Hospital Landshut, 84034 Landshut, Germany

^cDepartment of Psychiatry and Psychotherapy, University of Leipzig, 04103 Leipzig, Germany

Received 24 February 2009; accepted 29 June 2010

Abstract

Background: Since 2003, the Regensburg Alliance Against Depression, the regional partner of the German Alliance Against Depression, has been conducting a four-level intervention program to improve early detection and treatment of patients with depression, which was successfully piloted in the framework of the German Research Network on Depression and Suicidality.

Methods: After 5 years of campaign, the suicide rates before and after the intervention were evaluated in comparison with two control regions and with the German overall rate.

Findings: The results show that only the suicide rate in Regensburg fell significantly during the intervention period. The drop in the suicide rate was due to a significant decrease in male suicides.

Interpretation: An intensive community-based campaign could be effective in lowering suicide rates. Especially, the combination of continuing medical educations (CMEs) for general practitioners focusing on ‘male depression’ and low-threshold campaigns for the general public seems to reach male depressive patients.

© 2010 Elsevier Inc. All rights reserved.

Keywords: Suicide; Depression; Psychiatry; Prevention; Gender

1. Introduction

According to the World Health Organization (WHO), depression notably exceeds all other physical and psychological disorders in terms of years of life lived with disability [1]. Epidemiological studies show a 12-month prevalence of depressive disorders in Germany of 12% [2]. Germany’s suicide rate is about 15/100,000, which is in the middle of the European range [3]. The long-term suicide risk of depression is up to 7%. For males with a severe depression the suicide risk is around 20% [4]. The majority of suicides are subsequent to mental disorders [5,6], with mood disorders accounting for about 30% [5]. Therefore improved detection and treatment of mental disorders may be the most efficient strategy to decrease the risk of suicide [7–9], which was

impressively shown by the Gotland study [10]. This educational program on the diagnosis and treatment for all general practitioners on the Swedish Island of Gotland was effective in reducing suicide rates by 60% [11], mainly in those committed by females. In contrast, male suicides were almost unaffected [10]. However, the detection rate of depression in general practice is still low, at 50% [12,13]. No other epidemic has such potential for improvement in terms of detection and treatment [14,15]. The importance of depression is still not fully realized among the general public nor among doctors [16].

For this reason, in 2001 the Nuremberg Alliance Against Depression was initiated as a community-based pilot project within the German Research Network on Depression and Suicidality (funded by Germany’s Federal Ministry of Education and Research). Subsequent to the promising Nuremberg pilot, the results of the 2-year intervention program have just been published and are showing a significant drop in suicidal acts [17,18]. A nationwide campaign started in 2003 followed by the establishment of

* Corresponding author. Tel.: +49 (0)941/941 1621; fax: +49 (0)941/941 1605.

E-mail address: bettina.huebner-liebermann@medbo.de
(B. Hübner-Liebermann).

the European Alliance Against Depression (EAAD) in 2004 [19]. The EAAD aimed at improving the early detection and provision of care for people with depression by intervening simultaneously on different levels and utilizing the knowledge of an international network of experts in combination with a number of regional activities. The European Commission listed the EAAD as a best practice example in its green paper.

Activities in Regensburg — one of the first partners in the German Alliance Against Depression — started in early 2003. To establish a comprehensive alliance at the local level, all institutions relevant to psychosocial care provision were involved from the beginning [20], headed up by the regional psychiatric hospital. At this time, Regensburg had notably higher rates of depression and suicide than the rest of Germany [20,21]. The major goal of the intervention was therefore to reduce the suicide rate by an alliance against depression.

2. Method

2.1. Sample

We investigated the frequency of suicides on the basis of the suicide statistics of the police directorate of Regensburg for the years 1998 up to 2007. We compared suicides in the city of Regensburg (a city with a population of 150,000) with those of the control regions of the county districts of Regensburg (population 180,000) and Neumarkt (population 130,000), where no activities of the alliance took place, as well as with the overall suicide rate of Germany.

2.2. Intervention

The intervention program in Regensburg used the four-level approach from the Nuremberg pilot [12]:

1. To improve cooperation with general practitioners, teaching videos and patient videos, information brochures, and screening sheets (WHO-5) were distributed; eight continuing medical education (CME) events with more than 350 participants were conducted in collaboration with the regional confederation of doctors; also a conference attended by more than 100 participants was held on the topic of depression.
2. An educational campaign for the general public included the information materials developed in the pilot (posters, flyers, information brochures, information videos, CD-ROM or DVD, cinema advertising) and some 35 public lectures, as well as annual action days with about 150 participants each. Depression was the topic of television, radio, and newspaper/magazine reports. In cooperation with the local newspaper, a low-threshold telephone initiative was used to publicize the topic.
3. So-called multipliers were involved in more than 30 training workshops for secondary school teachers, lay

helpers, carers for elderly people, police personnel, practice assistants, pharmacists, and professional fire brigades. A media guide for reporting suicide was agreed with the regional press.

4. Two self-help groups and quite a few psychoeducational groups for relatives were set up for those affected by depression and their families. An email address was established to enable those affected and their families to contact the Regensburg Alliance Against Depression directly. Instead of an emergency card for crisis situations, flyers gave information on local crisis services and the psychiatric hospital, which is available 24/7.

2.3. Statistics

The prospectively chosen outcome measure of the intervention — the suicide rate — was analyzed for the city of Regensburg and the control regions, as well as for Germany totaling over 10 years from 1998 up to 2007. This consisted of 5 years before the intervention took place and the five subsequent intervention years. We compared the suicide rate per 100,000 population for every year regarding the deviation from the average 10-year rate by means of chi-square tests. Because of our sample size, exact significances by Fisher's Exact Test are cited. In addition, we evaluated outcomes for the male and female population of the city of Regensburg separately.

3. Results

The mean rate of suicides for the city of Regensburg during the evaluated period from 1998 up to 2007 was 16.9 (S.D.=6.79) per 100,000 population (Table 1). Significant deviations could be found for the years 2001 with a rate of 30 (standardized residual=3.2) and 2004 with a rate of 7 (standardized residual=-2.4), the lowest rate ever in the evaluated period ($z=22.997$; $P=.004$). In the control regions, the two county districts of Regensburg and Neumarkt, as well

Table 1
Suicide rates per 100,000 population (including standardized residuals) in the city of Regensburg and the control regions from 1998 to 2007

	City of Regensburg	County district of Regensburg	County district of Neumarkt	Germany
1998	21 (1.0)	19 (1.8)	10 (-0.6)	14 (0.2)
1999	13 (-0.9)	7 (-1.6)	14 (0.5)	14 (0.2)
2000	19 (0.5)	14 (0.4)	21 (2.6)**	13 (0.0)
2001	30 (3.2)**	12 (-0.2)	13 (0.3)	14 (0.2)
2002	24 (1.7)	16 (1.0)	12 (0.0)	14 (0.2)
2003	13 (-0.9)	13 (0.1)	7 (-1.5)	14 (0.2)
2004	7 (-2.4)*	9 (-1.0)	9 (-0.9)	13 (0.0)
2005	16 (-0.2)	11 (-0.5)	11 (-0.3)	12 (-0.3)
2006	12 (-1.2)	14 (0.4)	11 (-0.3)	12 (-0.3)
2007	14 (-0.7)	11 (-0.5)	13 (0.3)	11 (-0.6)

* $P<.05$.

** $P<.01$.

as in Germany, the mean suicide rates were 12.6 (S.D.=3.23; county district of Regensburg), 12.1 (S.D.=4.24; county district of Neumarkt) and 13.1 (S.D.=0.80; Germany), respectively. Significant deviations could not be found for any of these (county district of Regensburg: $z=8.321$; $P=.493$; county district of Neumarkt: $z=9.529$; $P=.381$; Germany: $z=0.944$; $P=1.000$) (Fig. 1).

Evaluation by sex for the city of Regensburg showed a mean male suicide rate of 25.6 (S.D.=10.36) and a female rate of 8.5 (S.D.=4.19). The overall significant deviations in suicide rates were due to significant changes in male suicide rates ($z=47.437$; $P\leq.001$), whereas the female suicide rate held steady ($z=10.774$; $P=.278$) (Fig. 2).

4. Discussion

The evaluation revealed significant changes in suicide rates only for the city of Regensburg, especially in the male population. In the pilot project in Nuremberg, the suicidal acts altogether decreased significantly [17,18]. The intervention program in Regensburg included the same elements and used the same materials as the Nuremberg pilot. Since conditions were identical to Nuremberg and no systematic errors or other factors of influence were identified, the preventive effect of the intervention program could be the crucial element. However, in the context of such a naturalistic intervention study it is not possible to randomize or blind participants nor control for confounders; therefore the effect cannot be proved conclusively.

The fall in suicide rates in Regensburg reached significance in spite of the statistical problem of small numbers and the associated high fluctuations. The reduction in suicide rates was also higher than that of other multimodal

intervention programs such as the Defeat Depression Campaign [22] or the Gotland study [23].

The decrease in the suicide rate in Regensburg was due to a significant fall in male suicides. The interventions at the four levels — general practitioner, public, multipliers and affected people/relatives — seem to have reached men in particular — in contrast to the Gotland and Jämtland findings, respectively [7,23]. Both, based on educational programs for general practitioners only, failed to reduce male suicide rates. Rutz et al. [23] believe that the male suicidants were not reached by the medical health care system because of their alexithymic incapacity to ask for help as well as of their atypical symptoms, e.g., abusive behavior. However, the findings in our study could lead to the assumption that men in the city of Regensburg used professional, medical, as well as psychosocial help more frequently. The subsequent diagnosis and (psychopharmacological) treatment of depression (or other psychiatric disorders) could have prevented suicide.

The elements of education of the general public and CME for general practitioners may be synergistically important. The telephone-consultation hour conducted by three male psychiatrists in cooperation with the local newspaper and the annual action days reached mainly male people. Probably, male depressive patients prefer noncommittal and anonymous consultations as a first measure. More detailed studies covering gender differences in help-seeking behavior concerning low-threshold interactions, such as internet forums, could be valuable [24]. In addition, the CMEs focused particularly on the symptoms of ‘male depression,’ such as addictive and risk behavior as well as irritability [25].

The combination of these measures may possibly have been associated with better results than the solitary effects of

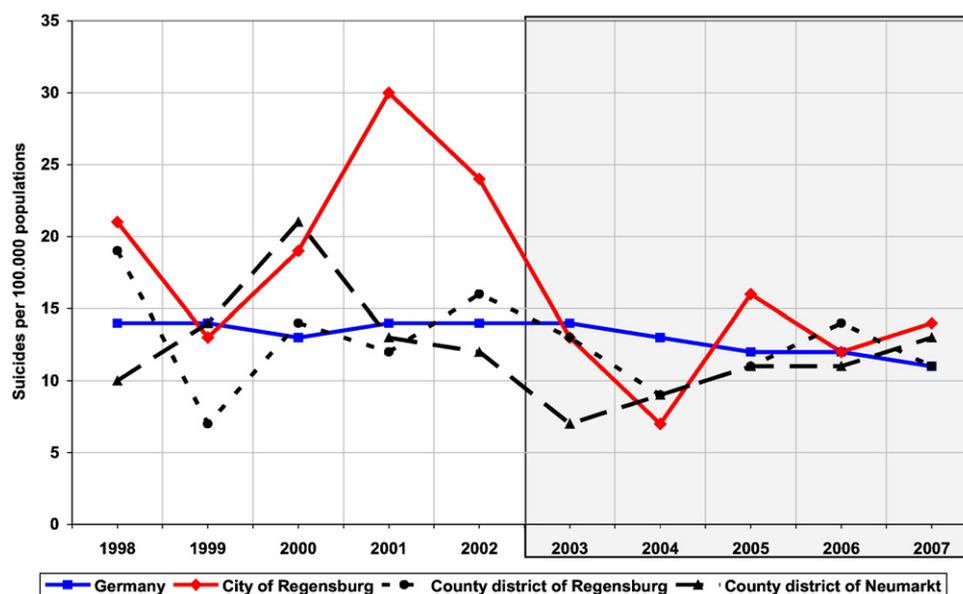


Fig. 1. Suicide rates before (1998–2002) and after (2003–2007) the implementation of the Regensburg Alliance Against Depression compared with control regions.

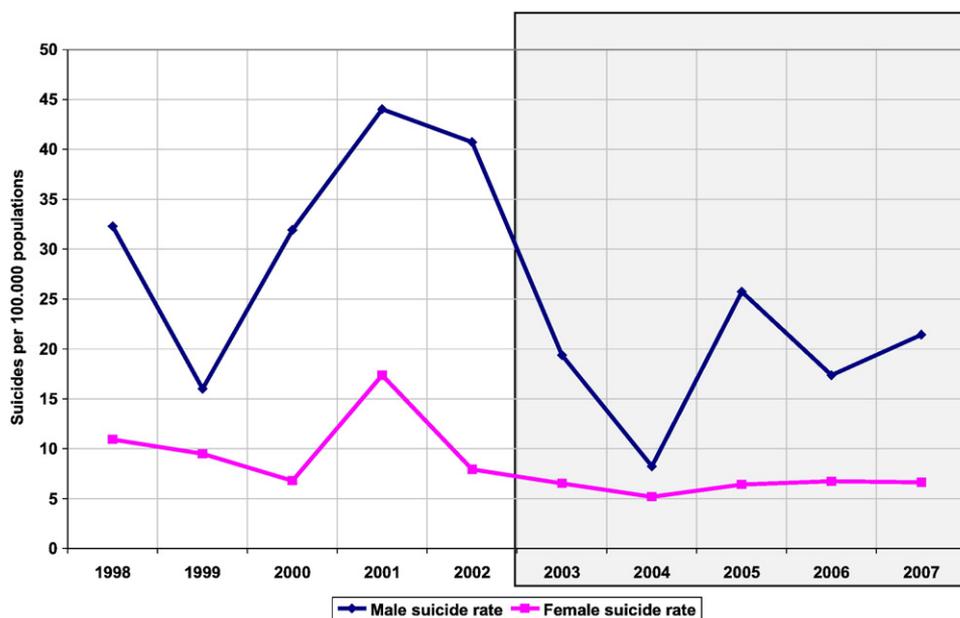


Fig. 2. Male and female suicide rates in the city of Regensburg before (1998–2002) and after (2003–2007) the implementation of the Regensburg Alliance Against Depression.

an educational program for the GPs: ideally, the depressed (male) patient is able to interpret his or her problems as symptoms of a depression in consequence of the public educational campaign and consults a general practitioner who has received additional training in the diagnosis and therapy of depression. Experiences from the Gotland study support this hypothesis [23,26].

However, a significant decrease could be shown only for the first year after starting the community-based four-level program Alliance Against Depression, where the Alliance's dedication was on a top level, performing the intervention measures to a high and frequent extent. Considering the statistical problem of small numbers, outliers and the high fluctuations associated with suicide rates, the interpretation of — even though statistically significant — changes has to be interpreted conservatively. Especially when comparing areas with small population figures, minor fluctuations in the real suicide numbers can result in huge fluctuations in the calculated suicide rates. In addition, the resulting Regensburg suicide rate just drew near the overall German rate and the county rates. Therefore, neither a permanent reduction in suicide rate could be reached nor a decrease below the mean German rate. Obviously, a continual and intense prevention program is required to lower or even avoid an increase in suicide rates at the former level [21] — as it was stated already by the Gotland study [11,27].

Besides the prevention of suicidal acts [3,28] — an important and challenging task for psychiatry [29], there is another aspect of prime importance for clinical practice: a public educational campaign as thorough as this one, running over more than 5 years and being headed up by the local psychiatric hospital, may contribute to reduce stigmatization

and fear of psychiatric hospitals. Furthermore, the campaign has improved the cooperation and networking with other psychosocial institutions in the region [20]. Possible additional positive effects for the psychiatric service provision should thus not be underestimated — especially as the German mental health care is marked by a wide gap between inpatient and outpatient services with separate funding. Furthermore, the Alliance Against Depression could also be a platform for improved early detection and treatment of other psychiatric disorders.

4.1. Significant outcomes

- Suicide rates can be reduced by a community-based campaign
- Male suicides could be prevented by a combination of low-threshold campaigns and CMEs for GPs focusing on 'male depression'

4.2. Limitations

- Owing to the design as a naturalistic intervention study, it was neither possible to randomize nor blind; therefore confounding factors might contribute to the findings
- The results have to be interpreted carefully because of the statistical problem of small numbers and the associated high fluctuations

References

- [1] World Health Organization. World health report 2001: Mental health: New understanding. New hope. Geneva: WHO; 2001.

- [2] Wittchen HU, Pittrow D. Prevalence, recognition and management of depression in primary care in Germany: the Depression 2000 Study. *Hum Psychopharmacol Clin Exp* 2002;17:S1–S11.
- [3] Wolfersdorf M, Franke C. Suicidality — suicide and suicide prevention. *Fortschr Neurol Psychiatr* 2006;74:400–19.
- [4] Bradvik L, Mattisson C, Bogren M, Nettelbladt P. Long-term suicide risk of depression in the Lundby cohort 1947–1997 — severity and gender. *Acta Psychiatr Scand* 2008;117:185–91.
- [5] Bertolote JM, Fleischmann A, De Leo D, Wasserman D. Psychiatric diagnoses and suicide: revisiting the evidence. *Crisis* 2004;24:147–55.
- [6] Arsenaull-Lapierre G, Kim C, Turecki G. Psychiatric diagnoses in 3275 suicides: a meta-analysis. *BMC Psychiatry* 2004;4:37.
- [7] Henriksson S, Isacson G. Increased antidepressant use and fewer suicides in Jämtland county, Sweden, after a primary care educational programme on the treatment of depression. *Acta Psychiatr Scand* 2006;114:159–67.
- [8] Mortensen PB, Agerbo E, Erikson T, Qin P, Westergaard-Nielsen N. Psychiatric illness and risk factors for suicide in Denmark. *Lancet* 2000;355:9–12.
- [9] Sondergard L, Kvist K, Lopez AG, Andersen PK, Lessing LV. Temporal changes in suicide rates for persons treated and not treated with antidepressants in Denmark during 1995–1999. *Acta Psychiatr Scand* 2006;114:168–76.
- [10] Rutz W. Improvement of care for people suffering from depression: the need for comprehensive education. *Int Clin Psychopharmacol* 1999;14: S27–33.
- [11] Rutz W. Preventing suicide and premature death by education and treatment. *J Affect Disord* 2001;62:123–9.
- [12] Jakobi F, Höfler M, Meister W, Wittchen HU. Prevalence, detection and prescribing behavior in depressive syndromes. A German federal family physician study. *Nervenarzt* 2002;73:651–8.
- [13] Üstun TB, Sartorius N. Mental illness in general health care across the world. An international study. New York: Wiley; 1995.
- [14] Ebmeier KP, Donaghey C, Steele D. Recent developments and current controversies in depression. *Lancet* 2006;367:153–67.
- [15] Spießl H, Hübner-Liebermann B, Hajak G. Depression, a widespread disease. Epidemiology, care situation, diagnosis, therapy and prevention. *Dtsch Med Wochenschr* 2006;131:35–40.
- [16] Spießl H, Hübner-Liebermann B, Hajak G. Depression—but many are (still) looking away! *Psychiatr Prax* 2007;33:53–4.
- [17] Althaus D, Niklewski G, Schmidtke A, Hegerl U. Changes in the frequency of suicidal behaviour after a 2-year intervention campaign. *Nervenarzt* 2007;78:277–82.
- [18] Hegerl U, Althaus D, Schmidtke A, Niklewski G. The alliance against depression: 2-year evaluation of a community-based intervention to reduce suicidality. *Psychol Med* 2006;36:1225–33.
- [19] Hegerl U, Wittmann M, Arensman E, et al. The “European Alliance Against Depression (EAAD)”. A multifaceted, community-based action programme against depression and suicidality. *World J Biol Psychiatry* 2007;5:1–8.
- [20] Spießl H, Hübner-Liebermann B. Prevention and public relations: The Regensburg Alliance Against Depression: an empirical report. *Krankenhauspsychiatrie* 2004;15:125–30.
- [21] Barta W, Frick U, Binder H. Nonresponse bias affects estimated prevalences of psychiatric disorders. 12th Symposium of the AEP, Section Committee Epidemiology and Social Psychiatry. Mannheim; 2004.
- [22] Paykel ES, Tylee A, Wright A, Priest RG, Rix S, Hart D. The Defeat Depression Campaign: psychiatry in the public arena. *Am J Psychiatry* 1997;154:59–65.
- [23] Rutz W, von Knorring L, Walinder J. Frequency of suicide on Gotland after systematic postgraduate education of general practitioners. *Acta Psychiatr Scand* 1989;80:151–4.
- [24] Hausner H, Hajak G, Spiessl H. Gender differences in help-seeking behavior on two internet forums for individuals with self-reported depression. *Gend Med* 2008;5:181–5.
- [25] Hausmann A, Rutz W, Benke U. Women seek for help — men die! Is depression really a female disease? *Neuropsychiatry* 2008;22: 43–8.
- [26] Rutz W. Prevention of male suicides: lessons from Gotland study. *Lancet* 1995;345:524.
- [27] Rutz W, von Knorring L, Walinder J. Long-term effects of an educational program for general practitioners given by the Swedish Committee for the Prevention and Treatment of Depression. *Acta Psychiatr Scand* 1992;85:83–8.
- [28] Althaus D, Hegerl U. The evaluation of suicide prevention activities: state of the art. *World J Biol Psychiatry* 2003;4:156–65.
- [29] Spießl H, Neuner T, Mehlsteibl D, Schmid R, Hübner-Liebermann B. Which contribution to suicide prevention make psychiatric hospitals? *Suizidprophylaxe* 2007;34:207–12.