

# Childhood Adversities and Suicide Attempts: A Retrospective Study

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**Abstract** The aim of the study was to assess the association among various childhood adversities and suicide attempts. A total of 575 patients of a psychosomatic clinic and general practitioners were examined by use of a structured interview. Seventeen percent of the sample reported a suicide attempt in the past. In particular, two forms of early violence (i.e., sexual abuse and harsh physical punishment) were associated with an increased risk for suicide attempts. In addition, financial hardship was associated with an increased risk for suicide attempts.

Parental separation or divorce, and physical arguments between parents, increased the risk only in a bivariate analysis; after controlling for other adversities, no association with suicide attempts remained. Suicide attempts can be considered as an act of violence against oneself; they are associated with early experiences of sexual and physical violence.

**Keywords** Suicide attempts · Childhood sexual abuse · Harsh physical punishment · Financial hardship · Retrospective study

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## Introduction

Worldwide, suicide constitutes the 13th leading cause of death (World Health Organization 2002). In youths, it even may reach the position of one of the leading causes of death, but it also occurs among older people. On the whole, 90% of persons who commit suicide suffer from a mental disease (Beautrais et al. 1996). There is some evidence for a genetic aspect of committing suicide (Correa et al. 2004), but considerable variance is also attributable to environmental factors (Statham et al. 1998). For example, childhood adversities are associated with increased risk for suicide. A large study performed in cooperation with the Centers for Disease Control and Prevention (Felitti et al. 1998) focused on the relationship among seven childhood adversities: (1) emotional abuse, (2) physical abuse, and (3) sexual abuse, as well as (4) substance abuse, (5) criminal behavior of one parent, and (6) violent treatment of the mother—as signs of household dysfunction. The investigators found in persons reporting four or more of these adversities a 4- to 12-fold increased risk for suicide attempts.

Johnson et al. (2002) observed a higher risk for suicide in highly violent school environments, and also when associated with abuse, maladaptive parenting, and being born to a mother younger than age 20. Brown et al. (1999) found odds ratios between 1.5 to 4.0 for abuse and neglect in relation to suicide attempts in adolescence or young adulthood. Similar results were reported by Fergusson and Lynskey (1995) New Zealand, Statham et al. (1998) in Australia, and Roy (2004) and Oates (Oates 2004) in the US. In addition, emotional abuse (Lipschitz et al. 1999) and poverty (Fergusson et al. 2000) were found to be associated with an increased risk of a suicide attempt. These correlational results should not be interpreted causally, it is possible that some variables are standing as a proxy for other, in a particular study unobserved ones.

### Aim of the Study

The aim of the present study was to assess the association among ten childhood adversities and suicide attempts. The investigation used both a bivariate and a multivariate analysis.

## Methods

### Sample

The present study was based on two samples: (a) patients of a psychosomatic clinic, and (b) of general practitioners yielding a total *N* of 575. Group (a) consisted of 292 patients who visited the Clinic of Psychosomatic Medicine and Psychotherapy in Mainz, Germany because of chronic and medically unexplained pain. The clinic has a stationary department treating about 100 patients per year and provides ambulatory care in the region for about 500 patients per year. It is well known for diagnosing and treating persistent pain. The second group (b) involved 283 patients who were interviewed at their general practitioners' offices. During the visits, the latter patients were asked by the practitioners if they would be willing to take part in a study about psychosocial factors and health. If so, a date for a structured interview was set by the practitioner. Dates were offered during the daytime and in the early evening so as not to exclude employed patients. The interview itself was performed by a trained psychological or medical student and lasted approximately 1 h. The training of the students consists of a 2 day workshop by JH when the interview was introduced by several videos. The students then performed one or two interviews themselves under supervision of an experienced interviewer, i.e., who performed more than 100 interviews himself (mostly JH). After the interview, patients were allotted an additional half

hour to fill out a small booklet containing questionnaires. In clinic patients presenting with chronic pain, data collection, while part of the clinic's standard diagnostic procedure, was essentially identical to that for the patients of the general practitioners. Participation was voluntary and unpaid for all patients. All patients gave written informed consent to take part in a study. An approval of the study protocol by an institutional review board for evaluation of ethics of research was provided for sample b, not for a. In sample a, the data collection was independent from any kind of treatment and it was guaranteed to the patients that no information about the interview would be forwarded towards their general practitioner—except on explicit demand of the patient. The same group of students conducted the interviews in both samples. The mean age of the sample was 44.7 years (standard deviation = 11.6 years). More detailed characteristics of the sample are given in Table 1.

### Measures

Data on suicide attempts were collected by use of the Mainz Structured Biographical Interview (MSBI; Egle and Hardt 2004). The MSBI contains seven sections: actual complaints, pain, complaints of previous years, childhood adversities and protective factors, relationship with spouse, job situation, and actual mood of the patient. It is a rater-

**Table 1** Sample description (*N*=575)

| Variable                           | Percent | n/N       |
|------------------------------------|---------|-----------|
| Sex (% female; females/ <i>N</i> ) | 74.8    | (430/575) |
| Marital status                     |         |           |
| Single                             | 24.9    | (143/574) |
| Married/cohabiting                 | 75.1    | (431/574) |
| Years of formal education          |         |           |
| ≤9                                 | 42.5    | (244/574) |
| ≤13                                | 33.6    | (193/574) |
| >13                                | 23.9    | (137/574) |
| Occupation                         |         |           |
| Regular job                        | 55.9    | (320/572) |
| <10 h work per week                | 4.9     | (28/572)  |
| Occupational training              | 4.5     | (26/572)  |
| Disabled (unable to work)          | 7.7     | (44/572)  |
| Unemployed                         | 7.9     | (45/572)  |
| Retired                            | 8.6     | (49/572)  |
| Father' SES                        |         |           |
| 1 Higher grade professional        | 1.8     | (10/557)  |
| 2 Lower grade professional         | 12.2    | (68/557)  |
| 3a Skilled non-manual employee     | 13.5    | (75/557)  |
| 3b Skilled manual employee         | 21.4    | (119/557) |
| 4 Partly skilled worker            | 36.5    | (203/557) |
| 5 Unskilled labourer               | 14.8    | (82/557)  |

*N*'s vary due to missing data

based interview, what means that any decision regarding how an answer should be coded is made by the rater and not by the patient (Kappis and Hardt 2004). The questions about suicide were part of the section on physical and psychological complaints in previous years. Patients were asked if they (1) ever had serious thoughts about suicide and, if so, (2) had made a concrete plan or (3) had made an actual suicide attempt. Answers were coded into the severest category. No additional conditions, such as being hurt or needing help, were required. Test–retest reliability of the question on suicide attempts was examined in a sub-sample of 62 patients of sample 1 who were interviewed twice by different interviewers with a mean time lag of 2 years. The kappa between the two measurements was .50, a moderate value only compared to other items out of the MSBI (Hardt et al. 2006). The questions about childhood adversities and protective factors constitute a separate section in the MSBI. The following adverse childhood experiences (ACE) were selected for the analysis:

- Born when mother was <20 years old (coded zero, 1)
- Chronic illness during childhood (coded 0, 1)
- Death of a parent before subject’s age of 18 (coded 0, 1)
- Separation or divorce of parents before subject’s age of 15 (coded 0, 1)
- Substance abuse of at least one parent starting before subject’s age of 15 (coded 0, 1)
- Physical arguments between parents (coded 0, 1)
- Financial hardship in the family until subject’s age of 7 (coded 0, 1)
- Paternal SES (coded I, II, IIIa, IIIb, IV, V: Hollingshead 1975)
- Harsh physical punishment before age of 14 (coded 0, 1)

- Severe sexual abuse in childhood (defined as genital stimulation or physical sexual contact by a person at least 5 years older than the subject; coded 0, 1)

Statistical Analysis

A first analysis revealed that the use of odds ratios led to strongly overestimated effects in the present case; e.g., the crude odds ratio between childhood sexual abuse and suicide attempts was 5.7, and the corresponding relative risk was 3.5 (Table 2). The reason lies in the relatively high base rate of suicide attempts in our sample (Davies et al. 1998). We chose to use a Poisson regression approach that permitted the testing of relative risks (RR) with multiple explanatory variables (Zhou 2004). In the case of empty cells, the Poisson regression analysis was performed by adding a value of 0.5 to each cell.

Because strong sex differences were reported in a large community survey on macroeconomic risk factors of suicide (Berk et al. 2005), we tested whether any interaction between the childhood adversities and sex was significant with respect to suicide attempts. No such significant interactions were found, except for childhood sexual abuse (see Table 2, last two columns). In the present sample, only two men reported having been abused; neither reported a suicide attempt. Based on these scant data, we decided not to take this interaction as an interpretable result but rather as a methodological artefact. Hence, a bivariate analysis for each ACE as a predictor of suicide attempts was performed.

Since most of the risk factors are associated, (e.g., children who were sexually abused also often experience physical punishment), we performed a multiple analysis in a second step. Therefore, a Poisson regression (method forward) for suicide attempts and all ACE’s were chosen. No

**Table 2** Bivariate associations between childhood adversities and suicide attempts and interactions with sex

| Childhood adversity                         | Main effect for adversity |              |     |       |        | Interaction with sex |        |
|---|---------------------------|--------------|-----|-------|--------|----------------------|--------|
|   | Present                   | Absent       | RR  | z     | p      | z                    | p      |
| Childhood sexual abuse                      | 47% (25/53)               | 14% (69/509) | 3.5 | 6.79  | <0.001 | -16.92 <sup>b</sup>  | <0.001 |
| Physical punishment                         | 37% (41/109)              | 12% (55/462) | 3.2 | 6.51  | <0.001 | -0.79                | 0.429  |
| Childhood chronic illness                   | 23% (23/101)              | 16% (75/472) | 1.4 | 1.70  | 0.089  | -0.99                | 0.320  |
| Born when mother was <20 years old          | 19% (6/32)                | 17% (92/542) | 1.1 | 0.26  | 0.794  | -0.14                | 0.886  |
| Death of a parent                           | 16% (8/50)                | 17% (89/522) | 0.9 | -0.19 | 0.851  | -0.43                | 0.669  |
| Parental separation or divorce              | 28% (18/64)               | 16% (80/509) | 1.8 | 2.59  | 0.010  | -1.94                | 0.052  |
| Parental alcohol abuse                      | 18% (22/119)              | 16% (69/433) | 1.2 | 0.67  | 0.504  | -1.58                | 0.114  |
| Physical arguments between parents          | 25% (26/104)              | 14% (64/447) | 1.7 | 2.71  | 0.007  | -1.08                | 0.278  |
| Financial hardship before age of 7          | 26% (46/177)              | 13% (52/395) | 2.0 | 3.75  | <0.001 | -2.18                | 0.029  |
| Low parental educational level <sup>a</sup> |                           |              | 1.1 | 0.69  | 0.493  | -2.25                | 0.024  |

N’s vary due to missing data

<sup>a</sup> Coded 1–6

<sup>b</sup> Result interpreted as an artefact, see text

**Table 3** Cell counts for the childhood adversities

| Childhood adversity                | Women   |    |        |     | Men     |    |        |     |
|------------------------------------|---------|----|--------|-----|---------|----|--------|-----|
|                                    | Abuse   |    |        |     | Abuse   |    |        |     |
|                                    | Present |    | Absent |     | Present |    | Absent |     |
|                                    | Yes     | No | Yes    | No  | Yes     | No | Yes    | No  |
| Childhood sexual abuse             | 25      | 54 | 26     | 313 | 0       | 15 | 2      | 227 |
| Physical punishment                | 33      | 48 | 50     | 295 | 8       | 7  | 18     | 112 |
| Childhood chronic illness          | 19      | 64 | 56     | 290 | 4       | 11 | 22     | 107 |
| Born when mother was <20 years old | 5       | 78 | 21     | 325 | 1       | 14 | 5      | 125 |
| Death of a parent                  | 16      | 67 | 27     | 218 | 1       | 14 | 8      | 122 |
| Parental separation or divorce     | 7       | 75 | 34     | 311 | 2       | 13 | 19     | 111 |
| Parental alcohol abuse             | 19      | 57 | 66     | 217 | 3       | 12 | 31     | 94  |
| Physical arguments between parents | 21      | 54 | 54     | 218 | 5       | 10 | 24     | 103 |
| Financial hardship before age of 7 | 40      | 43 | 90     | 254 | 6       | 9  | 41     | 89  |

listwise deletion of missing data was applied; however, equations were performed by including all cases having complete data for the variables already in the model and the variable actually under investigation. All data were entered twice into a special computer program to minimize typing errors. The significance level was set to  $\alpha = 0.01$ . Computations were performed using the Poisson module of Stata 8.2 with robust variance estimate (StataCorp 2003).

## Results

A total of 17% of the sample reported lifetime suicide attempts. There was no difference in the rates between the two subgroups: clinic patients with chronic pain and patients of general practitioners. In the bivariate analysis, five significant associations were seen. Sexual abuse in childhood was a highly significant predictor for suicide attempts. Abused subjects ran a 3.5 times higher risk of suicide attempts than non-abused subjects. A similarly high predictive power characterised harsh physical punishment (RR = 3.2). Financial hardship until the age of 7 years was associated with a two times higher risk for suicide attempts. Parental separation or divorce ran a 1.8 times higher risk of a suicide attempt. Physical arguments between parents showed a 1.7 fold increased risk for suicide attempts. None of the other ACE's tested reached significance (see Table 2).

In the multivariate analysis, the three ACE's sexual abuse, physical punishment, and financial hardship until the age of 7 remained as significant predictors of suicide attempts. Parental separation or divorce slightly missed the significance level and showed an estimated partial RR of 1.6. Physical arguments between parents were not found to be relevant after controlling the other factors (see Tables 3 and 4).

## Discussion

At first glance a surprising result is the high prevalence of suicide attempts in this sample. Without observing a difference between patients of general practitioners and patients of a psychosomatic clinic, 17% is a rate far beyond those found in comparable studies (Bertolote et al. 2005). In comparison with the suicide rates of other European countries, Germany's rates are not among the highest (Voracek and Formann 2004). Therefore, it is not likely that suicide attempts in Germany are extremely high. A more likely explanation is that the high prevalence rate is an effect of our method of data collection. Perhaps it is easier for an individual to recall and/or report a suicide attempt in a clinical setting than in a survey. The context of being asked about suicide attempts during a clinical

**Table 4** Multiple regression: predictors of suicide attempts

|   | RR  | z     | p      |
|---|-----|-------|--------|
| Explanatory variables in the model      |     |       |        |
| Childhood sexual abuse                  | 2.8 | 5.47  | <0.001 |
| Physical punishment                     | 2.5 | 4.93  | >0.001 |
| Financial hardship before age of 7      | 1.8 | 3.16  | 0.002  |
| Variables not in the model <sup>a</sup> |     |       |        |
| Childhood chronic illness               | 1.2 | 0.99  | 0.323  |
| Born when mother was <20 years old      | 1.0 | -0.05 | 0.959  |
| Death of a parent                       | 0.9 | -0.29 | 0.799  |
| Parental separation or divorce          | 1.6 | 2.52  | 0.012  |
| Parental alcohol abuse                  | 0.8 | -1.12 | 0.261  |
| Physical arguments between parents      | 1.1 | 0.29  | 0.773  |
| Low paternal SES                        | 1.0 | -0.44 | 0.659  |

<sup>a</sup> Each line displays the parameters if this variable would be added next to the model;  $537 \leq n \leq 557$ , due to missing values

interview is different from the one of being asked by a representative of a commercial institute in a private home.

Despite the high prevalence rate, the results regarding our bivariate associations were congruent with those reported by other researchers. We observed increased rates of suicide attempts connected with childhood sexual abuse and physical punishment, as well as financial hardship, parental divorce or separation, and physical arguments between parents (Bergen et al. 2003; Brown et al. 1999; Fergusson et al. 1996, 2000; Johnson et al. 2002; Ystgaard et al. 2004). No other factors were associated with suicide attempts in the bivariate analysis; this outcome was particularly surprising, for parental alcohol abuse was found to be associated with suicide attempts in other studies (Glowinski et al. 2004; Sher et al. 2005).

In the multivariate analysis, only the three factors sexual abuse, physical punishment, and financial hardship remained significant in the model. Out of the three, the strongest predictor is childhood sexual abuse, a result similar to a one reported by Fanaous et al. (2004) in a large female twin study. In their study, Fanaous et al. tested 11 childhood adversities among a variety of additional variables in the prediction of thoughts of death or self-harm. Childhood sexual abuse was the only variable out of the 11 that were tested that remained significant in the multivariate analysis. Physical arguments between parents did not make any relevant independent contribution in the present sample. A plausible interpretation of the latter result is that effects of physical arguments between parents are mediated by higher rates of violence against the child (Wetzels 1997). The ACE of parental separation or divorce approached significance in the model. That the effect of parental separation or divorce is reduced in the multivariate analysis compared with the bivariate one is also plausible. In families experiencing divorce or separation, we observed higher rates of violence and financial hardship (Amato 2001); therefore, both variables share some variance.

The lack of any demonstrable interaction effect for sex might mean that females have no specific vulnerability compared to males. For long-term sequelae of childhood adversities, a different pattern generally has been reported: boys are said to be more vulnerable than girls (Egle and Hardt 2004). For example, after parental separation or divorce, boys show higher rates of behavioral problems, whereas girls do not (Franz et al. 2003). Further, regarding suicide attempts, a stronger association for sexually abused boys than for sexually abused girls was reported (Plunkett et al. 2001). In the present study, it has to be noted that in cases of sexual abuse, a sex interaction was not evident due to the small numbers of cases. Other variables reflected the same problem. Death of a parent and being born when one's mother was younger than 20 both displayed a cell with one observation only, parental

separation with two, alcohol abuse with three, and childhood chronic illness with four. Consequently, to detect sex interactions sensitively, a study using a much larger sample needs to be conducted.

The present study has several limitations. First, the analysis concerned persons who retrospectively reported a suicide attempt vs. those who did not. These two groups are not identical to suicide attempters vs. non-attempters. Second, it is possible that there was some recall bias in the sense that those who report suicide attempts also have a higher probability of reporting childhood adversities. In this case, effects would have been overestimated. Third, the present sample represents a high rather than a low SES group. Replication in a low SES sample is needed. Fourth, reliability of the MSBI regarding suicide attempts was moderate, only, indicating some error variance or even bias. Fifth, we asked about lifetime suicide attempts. Hence, it was possible to identify only factors pertaining to vulnerability. No mediating factors that may lead towards a concrete act were examined. For example, the development of depression or other psychiatric conditions may serve as an interesting mediator between ACE and suicide attempts; such an effect was reported by Martin et al. (2004) only for girls. However, this theory could be best examined in a longitudinal study.

Despite these limitations we believe that the present investigation yields new information about risk factors for suicide attempts. To our knowledge, this is the first study to report about the relationship among various childhood adversities and suicide attempts in Germany. It shows that the bivariate associations are similar to those observed in other studies and in other countries. In addition, the multivariate analysis shows a pattern in the risk factors for suicide attempts that may help mental health professionals improve theoretical and practical work regarding the prevention of suicide. We speculate that own experience of early violence—either sexual or physical—increases the risk for a suicide attempt. Other factors, such as physical arguments between parents, may rather play the role of a proxy for growing up in a violent world. Additionally, financial hardship, what independently increases the risk for suicide attempts, may be interpreted as an indicator for violence outside the family. Poor neighbourhoods are known to show higher levels of violence than good ones. By viewing a suicide attempt as an act of violence against the self, developers and heads of prevention programs may profit by including modules that enhance individuals' strategies for coping with violence. It assumes that suicide prevention programmes without any personal contact (e.g., via internet or TV) may prove substantial lack in efficacy. It seems that externalising violence and suicide share common roots in experiences of violence in childhood, that probably are not fully mastered by the subjects.



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