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ORIGINAL PAPER

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Suicide among adolescents

A psychological autopsy study of psychiatric, psychosocial and personality-related risk factors

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Abstract *Background* The suicide rate among young males in Belgium has doubled over the last decade. As more knowledge about risk factors is required to develop national prevention strategies, we investigated adolescent suicides using the psychological autopsy method. *Methods* A total of 32 informants were interviewed regarding 19 suicide cases (aged 15–19). A semi-structured interview schedule, constructed by Houston et al. (J Affect Disord 63:159–170, 2001), was used. *Results* All adolescents were suffering from one or more mental disord er(s) at the time of their death, and almost half of them were diagnosed with personality disorders. Adjustment disorders were diagnosed in one fifth of the sample, which appears to be relevant in view of the multiple life events and other psychosocial problems which adolescents were facing shortly before death. This suggests that difficulties in coping with stressful psychosocial problems are important in the course of the suicidal process. Only a small minority was receiving treatment for their disorders. *Conclusions* Mental disorders, commonly untreated and combined with personality disorders and psychosocial problems, are frequently found in young suicide victims. This study suggests that education in the diagnosis and treatment of depression, adjustment disorders and suicidality is important in the prevention of suicide.

Key words adolescents – suicide – psychological autopsy – mental disorders – personality disorders – psychosocial problems

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Introduction

High and increasing rates of suicide among young males have caused growing concern in several developed countries during the last decades [1, 18, 33]. Recently, however, there have been signs of a reversal in the pattern [22]. In English-speaking countries the trend indeed seems to be reversed: in the US, the suicide rate in males aged 15–24 declined by just over 20% between 1988 and 2000; in the UK and Wales, it declined by 27% and in Australia, it declined by 32% [42].

However, this subsequent fall in the suicide rate cannot be observed in several other countries. In Flanders/Belgium the suicide rate for males aged 15–24 years has doubled during the last decade (11.8 per 100,000 in 1990; 25.4 per 100,000 in 2000), while suicide rates for females have remained unchanged. More knowledge about the factors associated with suicide in young people is thus clearly needed.

Recent research has already identified a range of risk factors for suicidal behaviour which can be grouped according to several areas such as psychiatric variables, psychological and personality factors, and environmental or social variables. These findings, when combined, lead to the conclusion that suicidal behaviour can be viewed as a consequence of underlying trait vulnerability, including biological and psychological characteristics, and more state-dependent factors such as psychiatric and social variables [34].

An important contribution to this knowledge was made through the implementation of psychological autopsy studies. The psychological autopsy approach is the most informative method of studying the causes of suicide [21, 35]. Psychological autopsy studies consist of semi-structured interviews with relatives, friends and other possible informants of the deceased to obtain all available information and to reconstruct a life history for that person [1].

Psychological autopsy studies have been carried out in several countries such as Sweden [40], Finland [24], Scotland [11], the US [9, 41], Taiwan [14], New Zealand [2] and the UK [27], thus providing global information about possible risk factors for suicide.

Psychiatric characteristics have always been the main focus of attention in autopsy studies. Previous studies have consistently found a high prevalence of psychiatric disorders in adolescent and adult persons, which demonstrates the substantial significance of psychiatric disorders on the pathway to suicide. The most common psychiatric disorders have been affective disorders and substance abuse.

The relationship between psychosocial effects and suicide has received less attention in psychological autopsy studies, but Gould et al. [19] showed a significant impact of psychosocial factors on suicide risk, and stated that the effect of psychosocial factors is comparable with that of psychiatric disorders. Psychosocial risk factors include adverse life events, personal relationships and familial characteristics such as a family history of depression, substance abuse and parent–child discord.

Until recently, the association between personality-related variables and suicidal behaviour was not well documented. Several studies have now recognised the significance of personality disorders, especially when co-morbid with psychiatric disorders, as a major risk factor for suicide [10, 13, 31]. In spite of the apparent increased risk, the underlying mechanisms of the effect of personality disorders are not yet clear. In addition to the probable influence of a personality disorder as a persistent, underlying trait characteristic, there is also the possibility of a more mediating role in the co-morbidity with psychiatric disorders. Co-morbid personality disorders are often responsible for decreased efficacy of treatment for psychiatric disorders and a more complicated course of the illness, whether or not due to personality traits such as aggression and impulsivity, which are often involved in personality disorders [23, 31].

While knowledge about risk factors is increasing, several questions remain unanswered. With regard to national prevention strategies, more knowledge is required concerning suicide in young people, especially males, in Flanders/Belgium. We therefore conducted the first case-control study using the method of psychological autopsy in Belgium. The aim of this study was to investigate risk factors for suicide in young people. A large number of potential risk factors and areas of interest, including mental health problems, personality disorders and psychosocial variables, were examined to obtain a comprehensive description of characteristics associated with suicide. Results from the case-control comparison will be presented elsewhere. This paper reports the characteristics of the adolescent suicide cases.

Method

The study was approved by the Ethical Committee of the University Hospital.

Sample

Privacy-related issues raised by the Government Committee for the Protection of Privacy made it impossible to identify suicide cases (aged 15–19) from death certificates and to contact potential informants, nor was it allowed to make contact in any other way. An appeal had to be made to the Flemish organisation for surviving relatives. The main activity of this organisation is the management of self-help groups for surviving relatives. The organisation contacted their members and made an inquiry about their interest in the study. An information sheet describing the study and a reply slip with a stamped addressed envelope was sent when interest was shown by the relative. A total of 19 cases could be included in the study.

Only cases with a definite verdict of suicide were included in the study. Deaths due to an undetermined cause were not included.

The area selected for the study included the Dutch-speaking part of Belgium, namely, Flanders. Data concerning the suicide victims were collected using a standardized interview with the relatives. Information about the suicide victims was usually obtained from a parent or another caretaker, a sibling or friend. Informed consent was obtained from the relative before the interview.

All but three informants could be interviewed face-to-face. One informant lived abroad, and two other informants requested to fill in the questionnaire by correspondence.

The interviews (70.6%) were performed at home. The other informants were interviewed at the researcher's office upon the request of the interviewee. In eight cases there were two or more informants. There were 23 parents or caregivers (one grandmother and one adoptive parent), 3 siblings, 4 close friends, 1 partner and 1 aunt in the study. The interviews lasted between 4 and 7 h.

Measures

A semi-structured interview schedule, as developed by Houston et al. [27], was used. The interview schedule was translated into Dutch. Informants were asked about the following aspects: circumstances of the death, childhood, adolescence, family, housing, educational history, occupational history, interpersonal relationships, financial and legal problems, life events, medical history, psychiatric disorder and personality disorder.

Psychiatric diagnoses were made, according to *International Statistical Classification of Disease, 10th Revision* (ICD-10) criteria, based on the information collected during the interview. Allocation to diagnostic categories was made by two senior psychiatrists (K. Audenaert; C. van Heeringen) separately. Inter-rater reliability was measured by using the kappa statistic. A reanalysis of cases with diagnostic disagreement was done by both psychiatrists to reach a consensus.

Personality was assessed using the informant version of the Personality Assessment Schedule (PAS; [46]). Ratings within each personality area were classified according to Tyrer et al. [46], namely, a rating of 4–6 indicating trait accentuation and a rating of 7 or more indicating personality disorder. The questionnaire was translated into Dutch.

Parents also completed the parents version of the Child Behaviour Checklist (CBCL) [47]. The CBCL–Parent Report Form consists of 112 problem items. The parents rated their child on each item by indicating the severity of the problem on a scale of 0 (no problem) to 2 (severe problem). The CBCL scoring profile provides a total score (Total Problems), two primary scale scores (Internalizing Problems and Externalizing Problems), and eight subscale scores (Withdrawn, Somatic Complaints, Anxious/depressed, Social Prob-

lems, Thought Problems, Attention Problems, Delinquent Behaviour and Aggressive Behaviour). Dutch norms were available and used to score the CBCL.

Beck's Suicidal Intent Scale [3], a semi-structured 15-item interviewer rating scale, was used to evaluate the severity of suicidal intent for a suicide attempt or suicide.

Results

Demographic characteristics

A total of 19 cases were included in the study, including 17 males and 2 females aged 15–19 (M=17.6 years; SD=1.502). All subjects were born in Flanders, with the exception of one youngster who was born in Ethiopia. All subjects were unmarried. Consequently, the majority of subjects were living with one (8/19; 42.1%) or both (7/19; 36.8%) parent(s) at the time of death, and only three subjects were living alone. One subject had a child. At the time of their death, 16 subjects were studying, while one was working full-time, and two were studying part-time and working part-time.

Methods of suicide and suicide intent

The most frequently used method for suicide was self-injury (89.5%). One suicide was by self-poisoning, and one subject used a combination of self-injury and self-poisoning. Methods of self-injury included jumping/lying in front of a moving vehicle (train) (7), hanging (5), jumping (4) and shooting (2). Five subjects died at home, while 14 committed suicide outside their homes. Almost half of all subjects were known to have consumed alcohol (7/19; 36.8%) or drugs (2/19; 10.5%) during the day of their death. Results on the Suicide Intent Scale showed that all 19 subjects had high suicide intent (>13; M=22.95, SD=4.29; min=15; max=28).

Pre-suicidal communication, behaviour and planning

Some form of pre-suicidal communication—verbal or nonverbal (e.g. a suicide attempt, a farewell visit, giving away personal/valuable belongings etc.)—at any time before the suicide was present in 15 (78.9%) subjects. In most cases communication was made towards friends (eight cases; 42.1%). Communication towards parents, siblings or other relatives was rather rare.

A suicide note was found in 14 cases (73.7%). The message was addressed to parents (5), friends (2), partner (4), other relatives (1) and/or the entire family (2).

In 17 cases the provided information allowed for the description of the mood on the day of death. In seven persons (36.8%) the mood was described as normal on the last day; another seven (36.8%) were happy, and only three subjects (15.8%) were described as depressive or distressed. Eight subjects (42.1%) experienced no change in mood during the last week. Five (26.3%) cases had improved in mood, while three subjects (15.8%) were described as deteriorated.

Fifteen subjects (78.9%) were known to have planned their suicide. Details of planning included taking care of finance, giving away possessions and/or taking leave/parting. Only one suicide was thought to have been entirely impulsive.

Previous self-harm

A previous suicide attempt was reported in seven subjects (36.8%). Three of these subjects had carried out two or more attempts. Self-injury was used in four cases, while self-poisoning was used in three cases (two medication and one alcohol). In four cases the last suicide attempt had occurred within a half-year before death. Two cases had made a last attempt 2 years before the suicide, and one subject made a last attempt 6 years before death.

Four subjects received some form of psychiatric treatment after the suicide attempt. This included outpatient treatment (<5 visits) in two subjects and short in-patient treatment (<21 days) in two other subjects.

Familial factors

Two subjects had been adopted. Parental death had occurred in only one case. Fourteen subjects (73.7%) had lived with both parents during childhood, and nine subjects (47.4%) during adolescence. The family household had been unstable during the subjects' childhood in ten cases (52.6%). All subjects had siblings.

Parental divorce occurred in ten cases (52.6%). Nine subjects were living with a single parent after the divorce. One person was living with another relative. Five cases had regular contact with the other parent, while the other five subjects had no contact at all.

Five subjects' families had experienced financial problems during childhood.

Severe health problems were found in five subjects' families. In 16 cases (84.2%) there was a family history of psychiatric disorder (seven parents, three grandparents, six other family members), with affective disorder being the most common psychiatric disorder. A history of suicidal behaviour in the family was present in nine cases (47.4%) (four parents, one grandparent, one sibling and three other relatives). One subject's father died from suicide a year before the subjects' suicide.

Eleven subjects (57.9%) had experienced negative interactions or less satisfying communication with their father, with five subjects having no contact at all. Only three subjects experienced similar problems with

their mother, and six subjects had experienced problems with their sibling(s).

Exposure to suicidal behaviour

As mentioned above, a family history of suicidal behaviour was present in nine cases. A history of suicidal behaviour of a friend had occurred in almost half of all cases (47.4%). Seven subjects (36.8%) were known to have been exposed to information concerning suicide through the media (television, music and newspapers). In total, 14 subjects (73.7%) were known to have experienced some form of exposure.

Childhood and adolescence

Nine subjects (47.4%) experienced developmental problems during childhood. The most common problems were enuresis nocturna (six cases) and developmental speech deficiencies (four cases). Only three subjects had experienced health problems during childhood. Behavioural and/or emotional problems during childhood such as being difficult to manage or unhappy and withdrawn was found in five subjects (26.4%).

During adolescence, nine cases (47.4%) experienced health problems. Ten subjects (52.6%) had shown behavioural and/or emotional problems during adolescence. Eleven subjects (57.9%) had been experimenting with drugs and alcohol during adolescence. In six cases (31.6%) it was reported that the subject had experienced trouble with the police at some time in his or her life.

Social factors

Six subjects (31.6%) were described as having several friends. Twelve subjects (63.2%) had only a few friends, and one subject had no friends. In 11 cases (57.9%) it was reported that the subject had difficulties in making friends and first contacts with people. Sixteen subjects (84.2%) were described as having difficulties in trusting and confiding in people.

Only four subjects were having a relationship at the time of death. Eight subjects (42.1%) had never experienced a relationship before. In eight cases (42.1%) the relationship had ended within the year before death. Three subjects were known to experience problems in their sexual nature, i.e. denying or not disclosing their homosexuality or transsexualism.

Life events

All subjects had experienced at least one significant event within the year prior to death. In five cases significant life events occurred within the week before the suicide. In 13 cases life events occurred within 3 months before the suicide. Nine subjects had experienced a significant event within 6 months prior to death, and six subjects had experienced a significant event within a year before death.

The majority (78.9%) experienced multiple problems. The most common life events were failure in education (seven cases; 36.8%), stressful events in school (five cases; 26.3%), end of a relationship (eight cases; 42.1%), problems with partner (eight cases; 42.1%), severe emotional illness in the family (six cases; 31.7%) and severe problems with a family member (seven cases; 36.8%).

Psychiatric disorder

All cases (N=19) were diagnosed with an ICD-10 psychiatric disorder at the time of death (Table 1). The most common disorders were affective disorders (n=13; 68.5%), including 12 subjects (63.2%) with a depressive episode and one subject with bipolar affective disorder, current episode mixed. Adjustment disorder with depressed mood was found in four subjects (21.1%). Several disorders were rather rare and could only be diagnosed in one subject, i.e. schizo-affective disorder (mixed type), eating disorder (anorexia nervosa), gender identity disorder (transsexualism) and reading disorder. A total of ten subjects (52.6%) were diagnosed with substance-related disorder, including seven subjects (36.8%) diagnosed with cannabis abuse. Abuse of cocaine, lysergic acid diethylamide (LSD) and ecstasy was diagnosed in three subjects (15.8%), with two of these subjects also using cannabis. Alcohol abuse was not diagnosed.

The inter-rater reliability (kappa coefficients) of most psychiatric disorders was higher than 0.61 and was considered satisfactory, with the exception of adjustment disorders and substance abuse, which were considered to be unsatisfactory. The kappa coefficient for substance abuse disorder was reduced due to the

Table 1 Psychiatric diagnoses at the time of death according to ICD-10

Psychiatric diagnosis	Kappa	Principal		Secondary	
		n	%	*n*	%
Affective disorder					
Depressive episode	0.659	11	57.9	1	5.3
Bipolar	0.642	1	5.3	/	/
Schizo-affective disorder	0.642	1	5.3	/	/
Substance abuse	0.352	1	5.3	9	47.3
Adjustment disorder with depressive reaction	0.336	4	21.1	/	/
Eating disorder	1.000	1	5.3	/	/
Gender identity disorder	1.000	/	/	1	5.3
Specific developmental disorder	1.000	/	/	1	5.3
Any psychiatric disorder	0.684	19	100		

Table 2 Personality disorders at the time of death (*N*=19)

	Personality disorder		Trait accentuation (no PD)	
	n	%	*n*	%
Paranoid	1	5.3	/	/
Schizoid	/	/	/	/
Dissocial	/	/	/	/
Emotionally unstable (impulsive)	/	/	/	/
Emotionally unstable (borderline)	1	5.3	3	15.8
Histrionic	/	/	/	/
Anankastic	1	5.3	/	/
Anxious	1	5.3	2	10.6
Dependent	4	21.1	1	5.3
Any personality disorder	8	42.1	–	–
No personality disorder	5	26.3	–	–

high number of cannabis use, which was not always identified as substance abuse.

Co-morbidity was diagnosed in nine cases (47.4%). Affective disorders were the most common principal diagnoses, followed by adjustment disorders with depressed mood (Table 1). Substance abuse disorders were most often diagnosed as secondary disorder.

Personality disorder

Personality disorders were diagnosed in eight cases (42.1%) (Table 2). Dependent personality disorder was the most commonly identified disorder. Dissocial, schizoid, histrionic and emotional labile (impulsive) personality disorders were not diagnosed. With the exception of one case, there was also trait accentuation in other areas for those diagnosed with a personality disorder. Three subjects (15.8%) were diagnosed with trait accentuation in two areas.

Trait accentuation was present in six subjects (31.6%) who where not diagnosed as having a personality disorder. Borderline (emotional labile) personality disorders were most often identified as trait accentuation (Table 2). In five cases (26.3%) a personality disorder or trait accentuation can be excluded. There was co-morbidity of psychiatric disorders with personality disorders in 42.1% of the cases (*n*=8).

Psychiatric treatment

Three (15.8%) subjects were receiving active psychiatric care at the time of death. They were all out-patients at the time of death, but one subject had a history of in-patient treatment before. Two of them were prescribed psychotropic medication.

Only three other subjects had a history of psychiatric treatment. Two subjects were out-patients, and one subject had been admitted for a short time. One subject had received a few sessions of family therapy but was never treated individually.

An inquiry into subjects' attitudes towards their treatment revealed that almost all subjects felt that their treatment was hopeless, and that no treatment could be effective. There were also feelings of shame, with subjects concealing their treatment from friends and relatives.

All subjects were known to have a general practitioner. The majority of cases (*n*=15; 88.9%) had visited their general practitioner more than 1 year prior to death. Reasons for that visit were physical complaints in all cases. Four subjects (21.1%) had been in contact with their general practitioner within 4 months prior to death. Reasons for the last contact were emotional problems in three cases and physical complaints in one case.

Table 3 Results of the child behaviour checklist (*N*=13)

	Clinical level		Borderline level	
	n	%	*n*	%
Total problems	6	46.2	1	7.7
Internalizing problems	7	53.8	1	7.7
Externalizing	7	53.8	/	/
Withdrawn	1	7.7	2	15.4
Somatic complaints	1	7.7	2	15.4
Anxious/depressed	4	30.8	1	7.7
Social problems	/	/	/	/
Thought problems	7	53.8	/	/
Attention problems	3	23.1	1	7.7
Delinquent behaviour	1	7.7	6	46.2
Aggressive behaviour	/	/	2	15.4

Child behaviour checklist

Results on the CBCL were available for 13 subjects. The total number of cases meeting the borderline and clinical cut-off criteria is presented in Table 3. A total of 46.2% (*n*=6) of subjects for whom CBCL results were available was identified as having clinical problems. The total percentage of cases meeting the clinical cut-off criteria for Internalizing Problems and for Externalizing Problems was 53.8% (*n*=7). With regard to the subscales the number of cases meeting the clinical level was highest for Thought Problems, followed by Anxious/depressed. None of the cases was identified as having clinical or borderline social problems.

Discussion

The present paper describes the characteristics of 19 adolescent suicide cases of the first psychological autopsy study in Flanders/Belgium. The results of this study indicate that all cases suffered from one or more mental disorder(s) at the time of their death, and

almost half of them were diagnosed with personality disorders. Familial psychopathology, exposure to suicidal behaviour, social problems, important life events, previous self-harm, childhood and/or adolescent difficulties and lack of psychiatric care appeared to be other characteristics of the sample.

There are some limitations to this study. Psychological autopsy studies rely on retrospective examination of completed suicides. This information is based on secondary sources which can introduce bias into the assessment and diagnosis. However, it has been reported that the psychological autopsy method can provide post-mortem diagnoses which are consistent with clinician ante-mortem diagnosis [30], and there is evidence indicating that the information obtained is both reliable and valid [8]. In the current study, only one psychologist was assigned as an interviewer, as it is reported that having fewer interviewers results in higher reliability in psychiatric diagnosis and smaller methodological error variance [29]. With regard to familial psychopathology, it was, however, impossible to assess the validity of the familial psychiatric diagnoses given by the informants.

A limitation of this study is the small sample size. The initial expectations of recruitment through death certificates cannot be fulfilled due to privacy issues raised by the Government Committee for the Protection of Privacy, and an appeal had to be made to self-help groups for surviving relatives. Consequently, the study includes suicide cases with a time interval between the suicide and the interviews varying from 2 weeks to 4 years. However, it is reported that psychological autopsy reports are unaffected by the time interval between suicide and interview [6]. There are also a number of indications for the representativeness of the study sample. First, the study sample is representative of the total sample of adolescent suicide victims in Flanders in terms of age and gender. Secondly, the annual number of adolescent suicides in Flanders is approximately 30, which means that this psychological autopsy study covered almost one fifth of all adolescent suicides in Flanders during the last 4 years. Thirdly, although the rate of response to the invitation to participate in this study is not known, suicide survivors who join self-help groups may be well suited to act as informants in a psychological autopsy study. Bereavement self-help groups have the possibility to help develop and strengthen informal support networks, to enhance support satisfaction, diminish support needs, increase positive affect and be an effective way to reduce the trauma of coping with the death of a significant person [26, 44]. However, suicide survivors and survivors of other forms of bereavement (i.e. homicide, accidental loss, natural unexpected and expected loss) may be more similar than different regarding most measures of social support and subjective distress reactions. Sudden and traumatic death in general, rather than suicide in particular, thus appear to be associated with post-traumatic reactions [16, 37, 43]. Secondly, follow-up studies examining the effect of bereavement support groups and grief counselling showed that after 7–18 months follow-up, there were no differences regarding depression, anger, hostility, agoraphobia, anxiety, subjective stress and psychotropic medication usage between relatives who joined the support group or grief counselling and relatives who did not join [4, 32].

Similar to other studies [7, 9, 41], undetermined causes of death were not included in this study, so that the sample size was rather small but was absolutely certain about suicide being the cause of death. This was not the case in a comparable study of youth suicide [27], in which the inclusion of undetermined causes of death led to a substantial increase in sample size but also led to the potential effect on the quality of the data [48].

The findings of this study are, in general, congruent with those of other psychological autopsy studies of the characteristics of youth suicide. As in previous psychological autopsy studies [12], the present study confirms that mental disorders represent a strong risk factor for suicide. Also in keeping with previous research [29] is the identification of the two most prevalent categories of mental disorders and the high prevalence of co-morbidity between them, i.e. affective disorders and substance abuse. Although substance abuse was often diagnosed in this study, it is noteworthy that, in contrast to other studies [9, 11, 36], alcohol abuse was never observed. Although Henriksson et al. [24] identified a higher prevalence of alcohol abuse among males, this could not be found in our sample, which largely consists of male suicide victims.

The prevalence of personality disorders has been investigated less in previous studies. The present study indicates that a personality disorder can be diagnosed in 42% of the cases, with an additional 31.6% in which there was trait accentuation. Thus, personality disorders and trait accentuation can be excluded in only one fourth of the sample. Co-morbidity of personality disorder with psychiatric disorder was found in 42%. These figures are slightly higher than those from previous studies [24, 27, 29, 36], but these underline the significance of personality-related factors and disorders as a major risk factor for suicide. Although the validity of categorical diagnoses of personality disorders in children and adolescents is questionable, previous research in adolescents has shown that the PAS describes personality dimensions in a valid way [38, 39].

A family history of psychiatric disorder was apparent in 84%. In almost half of all cases there was a family history of suicidal behaviour. In three cases an effect of exposure is, however, unlikely, as the subject had no knowledge of the suicide attempt or suicide because it had occurred during childhood. Although previous studies also found a high number of familial psychopathology [7, 27] and of a family history of

suicidal behaviour [19, 40], these are rather high figures. The high rate of familial suicidal behaviour may be a clear indication of exposure to suicidal behaviour but also points at a possible genetic effect. In addition, there was a rather high frequency of exposure to suicidal behaviour outside the family through friends and media.

Previous psychological autopsy studies have, in general, found that life events are important precipitants of suicide [11, 14]. The findings in this study showed that all subjects had experienced at least one significant event within a year prior to death, and that the majority was facing multiple problems shortly before death. Consistent with Houston et al. [27], most common life events were the disruption in the relationship with a partner and/or the loss of an important relationship. A failure in education and communication problems with a family member also seemed to have a contribution to the risk of suicide. Contrary to other studies [19, 27] there was no indication of occupational problems, but this can be expected given the young age group.

Consistent with other reports [19], the results indicated that greater than half of all suicide victims had experienced negative interactions with their father. Almost one third had no contact at all with their father. There was less evidence of negative interactions with their mother. This result could be in line with the finding that a less satisfying relationship with the father is more strongly associated with suicidal behaviour than with the mother [45].

The strong association between life events and suicide also appears to be relevant in view of the commonly diagnosed adjustment disorders. The diagnosis of adjustment disorder in one fifth of the sample was rather high in this study when compared to most other psychological studies [11, 41]. The results indicate that difficulties in coping with stressful life events and/or other psychosocial factors are important features in the course of the suicidal process.

The results of this study, with regard to the CBCL, showed that half of all subjects scored within the clinical range on Internalizing Problems, Externalizing Problems and Thought Problems. Elevated scores on Internalizing and Externalizing Problems have been reported previously in suicidal youngsters [28], but this is not the case for Thought Problems. The Thought Problems Scale includes items referring to obsessive–compulsive behaviour, odd behaviours and ideas, and problems with reality testing and high scores are not common in the general population [5]. Although some items of the Thought Scale may indicate obsessive–compulsive disorder (OCD) or psychosis, there has never been clear evidence of the association between Thought problems and these diagnoses [17]. An elevated score on Thought Problems has, however, also been found in other populations such as children with tic disorder [25], boys with fragile x syndrome (with 57% of the group scoring within the borderline or clinical range; [20]), and children with epilepsy [15], and an elevated score on Thought Problems was found as the strongest predictor of alcohol abuse in young adulthood [17]. Nevertheless, as there is the possibility that parents retrospectively rated the cognitive processes and behaviour of their child prior to the suicide as odd or obsessive due to the suicidal ideations or psychiatric symptoms, this could have resulted in false positives. Therefore, more research is needed regarding the possible association between Thought Problems and suicide in young people.

Only a small minority of the subjects (15.8%) was receiving psychiatric treatment at the time of death. These figures are rather low when compared to other findings [27, 41], and it is a matter of concern that only three subjects were receiving psychiatric care. With regard to lifetime treatment, approximately one third of the suicide victims had received some type of psychiatric treatment at some point of their life, which is also a lower figure when compared to other findings [9, 41]. A closer observation of the type of psychiatric treatment revealed that half of all treatments consisted of a few out-patient visits. In-patient treatment was rare and included time-limited crisis intervention. Almost all subjects were known to have occasional contact with their general practitioner primarily for physical problems. Only a small minority visited their general practitioner shortly before death; however, they visited their general practitioner mainly for emotional problems. The assessment of the possibility for detection of affective disorders or suicidal ideation at these contacts can thus be life-saving.

The results of this study suggests that education in primary care on depression and suicide is an important area in the prevention of suicide. The low frequency of treatment in this study also emphasizes the important need and elaboration of prevention strategies which focus on treatment of mental disorders. In view of this finding it should also be noted that adjustment disorders are often associated with less severe psychiatric symptoms and, therefore, sometimes considered to be less threatening. This study suggests that the identification and assessment of adjustment disorders are equally important in the prevention of suicide.

Although it is clear that the detection and prevention of depressive disorders are important features in this issue, young people's attitudes towards mental health treatment should be further addressed. This study showed that young people often display negative feelings towards treatment. There seems to be feelings of shame and hopelessness towards the treatment. There is, of course, the possibility that these attitudes may be the reflection of a suicidal person's general feelings of hopelessness, which are common in the course of the suicidal process, but this needs to be further investigated.

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