Ten Year Follow-up Study of 65 Suicidal Adolescents

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Abstract

Introduction: This survey studies the 10 year psychosocial outcome of 65 adolescents admitted to the Nancy Children’s Hospital in 1994 after a suicide attempt. Method: survey conducted using a self-assessment questionnaire sent to adolescents and their parents. Results: The response rate was 55.4%. About seventy per cent (70.5%) of respondents stated they were happy in their affective lives 10 years after the reference attempt, almost 70% (67.6%) had a job, nearly three quarters (72.5%) considered that they were in good health and 59% felt happy. More than half (55%) had made a subsequent suicide attempt. Two patients committed suicide. The originality of this study lies in its methodology since it allows, through comparison of suicide attempters’ responses with medical data, a high level of under-declaration of repeated attempts to be detected (41.2%). Statistical study of the associations between the total number of repeated suicide attempts and demographic characteristics of the initial population nonetheless evidenced that patients with a history of suicide attempts and those with a history of early repeated attempts (within three months and/or the year) were significantly more likely to repeat their attempt within ten years. Conclusion: Most of the 34 patients traced seemed to have satisfactory personal and professional lives, in contrast to the high level of repeated suicide attempts. Repeated suicide attempts during adolescence appear to be one of the major risk factors in attempting suicide again within 10 years. This confirms the importance of preventive measures after a first suicide attempt.

Key words: adolescents, suicide attempt, repeated suicide attempts, outcome

Résumé

Introduction: Suivi, pendant 10 ans, de 65 adolescents hospitalisés à l’Hôpital pour enfants de Nancy en 1994 à la suite d’une tentative de suicide. Méthodologie: Les adolescents et leurs parents ont rempli un questionnaire d’auto-évaluation. Résultats: Le taux de réponse a été de 55,4 %. Dix ans après leur tentative de suicide 70,5 % des répondants déclaraient être heureux dans leur vie affective, 67,6 % d’entre eux avaient un travail, 72,5 % estimblaient être en bonne santé et 59 % se disaient heureux. Cinquante-cinq pour cent des sujets ont fait une nouvelle tentative de suicide. Deux sujets se sont suicidés. L’originalité de cette étude se trouve dans la méthodologie qui permet, en comparant les données médicales aux réponses des adolescents, de détecter un grand nombre (41,2%) de tentatives de suicide passées sous silence. L’étude statistique des associations entre le total des récidives et les caractéristiques démographiques de la population initiale a permis de constater que les patients qui avaient fait plusieurs tentatives de suicide et ceux qui avaient récidivé dans les trois mois ou dans l’année qui avait suivi risquaient, davantage que les autres, de recommencer dans les dix ans. Conclusion: La plupart des 34 patients suivis semblaient être satisfaits de leur vie personnelle et professionnelle, ce qui contrastait avec le nombre élevé de tentatives de suicide. Une tentative de suicide dans l’adolescence est un facteur sérieux de risque de récidive dans les dix années qui suivent. Cette constatation atteste de l’importance de la prévention après une première tentative de suicide.

Mots clés: adolescents, tentative de suicide, tentatives de suicide multiples, devenir

Introduction

Suicidal behaviours among adolescents constitute a major public health issue in France as in most of the industrialized countries (Federowicz & Fombone, 2007). In France, suicide is the second most common cause of death in the 15-24 year old group and especially affects boys (Mouquet & Bellamy, 2006). Suicide represents 14% of deaths in this age group. Although the number of completed suicides has declined since 1993, it is still a cause for considerable concern (Mouquet et al., 2006). The number of suicide attempts continues to rise, especially in girls (Choquet & Granboulan, 2004; Choquet & Pommereau, 2001). It is estimated that in France, 140 000 young people aged 15 to 24 will attempt suicide each year (Choquet et al., 2001). The major problem associated with deliberate self-harming is the high risk of repetition (Choquet et al., 2004).

Studies into the outcome of suicide attempters initially only centred on repeated attempt and death rates (Bioulac, Bourgeois, Ecouevi, Bonnin, Gonzales & Castello, 2000; Goldacre & Hawton, 1989; Hawton, Fagg, Stephen & Hawkins, 1993; Kottila & Lönnqvist, 1989), but then broadened to take into account psychosocial outcome (Granboulan, Rabain & Basquin, 1998 a; Kerfoot & McHugh, 1992; Laurent, Foussard, David & Boucharat, 2000). Such studies are, however, too few in number.
owing to the difficulties encountered in monitoring a patient group that frequently breaks off treatment (Granboulan, 1998 b). In addition, the results are heterogeneous owing to the different methodologies used (recruitment methods, initial sample size, follow-up period, etc). The princeps study into the long term outcome of suicidal adolescents is that conducted by Otto (1972) in Sweden, where 1727 children and adolescents had a follow-up period of 10 to 13 years. Information was obtained through the different national registers, whereby the patients were not contacted directly. Otto compared his results with those of a control group and demonstrated that death rates and cases of mental illness were significantly higher in the suicidal group. While research workers in Scandinavian countries have access to national registers, this is not the case in other countries such as France (Granboulan et al., 1998 a), with the result that most of the studies reported in the literature are the results of surveys conducted directly in the patients. These studies often report a rather negative psychosocial outcome, but the results are difficult to compare owing to the different methodologies used (recruitment methods, initial sample size, follow-up period, etc). During their 11 year follow-up study of 127 adolescents, Granboulan et al. (1998 a) reported that only 20% of patients experienced no mental illness. In contrast, Angle, O’Brien and McIntire (1983) reported quite satisfactory social recovery in 15 adolescents contacted by telephone 9 years after their deliberate self-poisoning. When contacted by Guillon, Brunod and Gallet (1987) one to five years after the suicide attempt of their child, parents of 49 adolescents considered that the socio-professional outcome and their intra-familial relationships were on the whole satisfactory. Yet others found intermediate results. The study by Laurent et al. (2000) demonstrated that the psychosocial adaptation of a group of 587 suicidal adolescents versus 293 controls was less positive only in terms of academic performance, frequency of alcohol consumption, rates of admission to the psychiatric ward and legal or disciplinary crises. Kerfoot and McHugh (1992) found that 25% of the 41 respondents had no particular problems 7 years after their attempt, 25% had significant psychosocial problems and the remaining 50% were situated between the two extremes.

To continue with this research, our aim was to evaluate repeated attempt rates and the psychosocial outcome of 65 suicidal adolescents 10 years after the event. This survey was conducted using a self-assessment questionnaire sent to both children and parents. The answers of patients who made a further suicide attempt were compared to their medical case notes at the Psychiatric Unit at the Children’s Hospital and at the Adult Psychiatric Emergency Unit at the Nancy University Hospital Centre.

**Materials and Methods**

**Initial population**

All adolescents admitted to the Nancy Children’s Hospital between January and December 1994 for a suicide attempt were included in the study, i.e. 65 patients. The study population consisted of 54 girls and 11 boys ages 11 to 19. The population was described (sex, age, schooling, family, etc.) using the medical case notes obtained in 1994. The definition retained for attempted suicide was “any act resulting from a deliberate wish to kill oneself, whether the death wish be great, unclear or even very vague” (Laurent et al., 2000). The suicide attempt, taken as the reference for this study and used to define suicide history and repeated suicide attempts, was the first attempt in 1994 for which the patient was treated at the Nancy Children’s Hospital. All suicide attempts made before the reference attempt are considered to be suicide history and all subsequent attempts as repeated attempts.

**Methods**

After a period of 10 years, the subjects were contacted through their parents via a letter containing two mirror-image questionnaires, one for the parents and one for their child, each accompanied by a cover letter. The envelope also contained two stamped addressed envelopes, used to return the completed questionnaires. The letter discussed the hospitalization in 1994, referred openly to the reason for admission and went on to explain how important it was for doctors to study patient outcome and assess the quality of the care and follow-up received. Parents were
asked to answer the questionnaire and give the second copy to their child.

**Questionnaire**

The questionnaire consists of 37 questions: 22 of yes/no answers, 11 open questions, and 4 auto evaluation scales for different aspects (affective life satisfaction, professional life satisfaction, psychological well-being and general health satisfaction). The questions are grouped into three parts: subject’s family life, schooling and professional life, and physical and mental health (see Table 1). The auto evaluation scales are one item numerical scales represented as a stroke along which the scores range from 0 to 10, 0 corresponding to “not satisfied”, 5 to “moderately satisfied” and 10 to “very satisfied”. The subject had to tick off the whole number related to his satisfaction degree.

**Population after 10 years (see Figure 1)**

In total, we were able to trace 40 of the original 65 patients (61.5%). Of these 40, 34 accepted to answer the questionnaire (85% of those contacted and 52.31% of the original population) and 6 refused (15% of subjects contacted, 9% of the original population): five parents and one former suicidal adolescent. Seven did not answer (10.8% of the original population), sixteen were lost to follow-up (new address unknown, 24.6% of the initial population) and two had died (3.1% of the original population). Information was therefore obtained for 36 patients or 55.4% of the original population. Of the thirty-four responses obtained, nine questionnaires were filled in by the child only (26.5%), five by the parents only (14.7%), and twenty by both (58.8%).

**Case notes data**

For repeated suicide attempts occurring within the ten year period, we compared the answers given by the patients with the data recorded in the case notes at the Psychiatric Unit at the Children’s Hospital and at the Adult Psychiatric Emergency Unit at the Nancy University Hospital Centre.

**Statistical analysis**

Responses on “patient” and “parent” questionnaires were compared using Spearman correlation coefficients for quantitative variables and by description of the percentages for the qualitative variables in order to study the degree of correlation between the two types of questionnaire. Associations existing between the total number of repeated attempts and the initial clinical and demographic data were subjected to bivariate analysis using Wilcoxon or Kruskall Wallis tests for the qualitative variables and Spearman correlation coefficients for the quantitative variables. The data were analysed using the ‘Statistical Analysis System’ version 8 for Windows (SAS institute, Cary, NC). Results with p<0.05 were considered to be statistically significant.

**Results**

**Description of the initial population**

The 1994 population consisted of 54 girls (83.1%) and 11 boys (16.9%), age range 11-19 years (mean age: 14.5 years, SD: 1.5 years). The means of suicide was self-poisoning in 87.8% of cases, wrist cutting in 10.8% and by another means in 1.4% of cases. Patients were hospitalised for a mean of 8.6 days (SD: 12.8 days). Thirty-one patients (47.7%) had a history of previous attempts. For the remaining 34 (52.3%), it was their first attempt. Fourteen patients, i.e. 21.5% of the population, presented with several mental illnesses (depression, anxiety, etc.). Family structure was often
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<th>Table 1. Extract from the responses of patients and/or parents to the main items on the questionnaire</th>
<th>Responding patients (n=20)</th>
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<th>%</th>
<th>Responding parents alone (n=5)</th>
<th>%</th>
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<th>%</th>
<th>Responding patients and parents (n=34)</th>
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perturbed. We noticed: 53.8% of parents were
divorced, single or widowed (15.4% had lost their
father and 18.4% their mother), 29.2% had alco-
holic parents (father, mother or both), 27% of
fathers and 45.2% of mothers were unemployed,
40% came from socially disadvantaged or very
disadvantaged backgrounds, 40% of adoles-
cents had a suicidal close relative or close rela-
tive who had died by suicide, 27.7% of patients
did not live with their parents. With regards to
poor academic performance or falling behind at
school, 58.5% of adolescents had problems at
the time they were admitted and 57% were
behind by at least a year.

10-year outcome of responding patients
(see table 1)
The traced subjects consisted of 27 women
(79.4%) and 7 men (20.6%), with a mean age
of 24.8 years (range: 21 to 29). Half the
respondents lived with a partner, 50% had chil-
dren, 70.5% stated they were happy in their
affective lives, 10 years after the reference
attempt (answers 7 to 10 on self-evaluation
scale; mean=7.52, standard deviation=2.83).
Almost 70% (67.6%) had a job, only 41% stated
that they were satisfied with their professional
situation (answers 7 to 10 on self-evaluation
scale; mean=6.07, standard deviation=3.10).
A quarter stated they had health problems,
18% took drugs, 15% drank alcohol every day,
76.5% smoked. Twenty-one per cent continued
to have suicidal tendencies, 37.5% felt
depressed. Fifteen per cent have been in
trouble with the law. Almost three quarters
(72.5%) considered that they were in good, or
very good, health (answers ranging from 7 to
10 on the scale; mean=7.45, standard deviation=2.43) and 59% felt happy, or very happy
(answers 7 to 10 on scale; mean=6.86, stan-
dard deviation=2.72). Persistent severe psy-
choaffective disorders were found in 18% of
respondents who had been admitted to hospi-
tal on several occasions for repeated suicide
attempts.

Death rate
It was possible to obtain information for 37
patients: the 34 who answered, the patient
who telephoned in person to refuse to partici-
pate and the two female patients, who had
gone on to complete suicide. The death rate in
this study is therefore 5.4%.

Repeated suicide attempt rate (see table 2)
According to the 34 completed question-
naires, 10 patients, or 29.4%, repeated their
suicide attempt (see Figure 2). However, there
are discrepancies between these answers and
the data recovered from patient case notes:

For early repeated attempts (in the year fol-
lowing the reference attempt in 1994): the data
found in paediatric psychiatric department
case notes have been included here. It was
thus possible to obtain information for 60 of
the original 65 adolescents. In their answers, 5
patients did not mention the repeated suicide
attempts they made although they were seen at
the children’s hospital or re-admitted for that
reason. Forty per cent of repeated attempts
took place in the 3 months following the refer-
ence attempt and seventy-three per cent within
the year (see Figure 3).

Delayed attempts: 4 respondents under-
derlined their answers since, despite their

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<th>Table 2. Repeated suicide attempt rate according to the sources consulted (n=60)</th>
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<td>Respondent population n=34</td>
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<td>Number of patients having relapsed according to the questionnaire answers</td>
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<td>Number of patients having relapsed when case notes are taken into account</td>
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responses to the questionnaire, they had been interviewed by a psychiatrist at the Adult Psychiatric Emergency Unit after a suicide attempt.

In total, 9 people under-declared their repeated attempts in their questionnaires (i.e. 47.4% of those answering the questionnaire had made repeated attempts). Nineteen of the thirty-four answering the questionnaire, i.e. 56%, therefore had made repeated suicide attempts (when case notes are taken into account).

Of the twenty-six who did not complete the questionnaire, some evidence of repeated suicide attempts was found in the case notes at the Children’s Hospital and/or Psychiatric Emergency Unit for 14 of them, or 53.8%.

Therefore, of the 60 subjects for whom we obtained information, 33 attempted suicide at least once more in the ten years following the 1994 attempt. The level calculated is therefore 55% (see Figure 2).

Correlation between questionnaire answers provided by patients and those of their parents

For the quantitative variables, the Spearman coefficient of correlation is as follows:
- $r = 0.92$ (p<0.0001) for the affective life satisfaction scale,
- $r = 0.75$ (p=0.0003) for the professional life satisfaction scale,
- $r = 0.95$ (p<0.0001) for the scale evaluating psychological well-being,
- $r = 0.51$ (p<0.05) for the general health satisfaction scale,
- $r = 0.72$ (p=0.0005) for the number of suicide attempts after the reference attempt, and,
- $r = 0.99$ (p<0.0001) for the duration of follow-up care after the reference suicide attempt.

The more $r$ is close to 1, the higher is the correlation.

The results obtained from the “patient” and “parent” questionnaires were coherent, even for the extremely subjective variables.

Prognostic factors

In this survey, few prognostic factors for outcome were recovered. Statistical study of the associations between the total number of repeated suicide attempts and demographic characteristics of the initial population were performed. Patients with a history of suicide attempts and those with a history of early repeated attempts (within three months and/or the year) were significantly more likely to repeat their attempt within ten years. The mean number of relapses amongst patients who had attempted suicide for the first time was 1.36 (SD: 2.84) and 2.7 (SD: 3.27) for those with repeated suicide attempts (p= 0.02). At 3 months, it was 1.58 (SD: 2.74) amongst patients who had attempted suicide for the first time and 3.14 (SD: 3.13) for those who repeated suicide attempts (p= 0.027). After one year, it was 1.2 (SD: 2.08) amongst patients who had attempted suicide for the first time and 4.78 (SD: 4.12) for those who repeated suicide attempts (p= 0.006).

For the seven boys, the mean number of relapses after attempted suicide was 2.29 (SD: 3.59), and for the 27 girls it was 2.11 (SD: 3.08). The difference was not significant (p= 0.96). The mean number of total relapses after attempted suicide was not related to sex.

Discussion

Strengths of the study:

Comparison with data in the literature:

After 10 years, it was possible to obtain information for 55.4% of the 65 patients. This is the highest response rate recorded in the literature, given the methodology (contact by sending the questionnaires), and the set 10 year follow-up period is one of the longest reported for surveys of this type. The results of this survey appear relatively optimistic when compared to those obtained in other similar studies (Granboulan et al., 1998 a; Laurent et al., 2000; Nardini-Maillard & Ladame, 1980; Otto, 1972). Roughly 65% of subjects questioned said that they “felt good”, and only 18% said they felt “very bad”.

Figure 3. Distribution of relapse over time (n=33)
However, the optimism of the answers given by former suiciders contrasts strongly with the high repeated attempt rate, which is one of the highest in comparison to studies with a roughly similar follow-up period. This rate is generally calculated using the answers to the questionnaires provided by the patients. If we had used this method here, our rate would have been 29.4%, which would have placed our results in the mean of studies with a similar follow-up period (Angle et al., 1983; Granboulan et al., 1998a; Kerfoot et al., 1992; Laurent et al., 2000) (see Figure 2).

The predictive factors for repeated suicide attempts found in our study is having made several attempts in the past, a fact that is often reported in the literature (Greenfield, Henry, Tse, Guile, Dougherty, Zhang, Fombonne, Lis, Lapalme-Remis & Harden, 2008; Kotila & Lönnqvist, 1987; Owens, Hoorocks & House, 2002; Spirito, Valeri, Boergers & Donaldson, 2003; Spirito & Esposito-Smythers, 2006; Suominen, Isometsä, Suokas, Haukka, Achte & Lönnqvist, 2004).

Specificity of the study conducted in Nancy:

In the course of our study, information concerning repeated suicide attempts was also obtained from patient case notes. This is one of the unique aspects of our study. There is only one paediatric emergency department for children and adolescents and only one such department for adults in Nancy, and we work closely with both. We were also able to obtain additional information from children’s psychiatric files as patients making repeated attempts in the two to three years following the reference suicide attempt in 1994 were re-admitted to the Children’s Hospital. Moreover, families of suicidal children are almost systematically provided with support in the form of a social worker who contacts the family the year after the event to get news of the adolescent concerned. We were able to use all this information stored in the case notes. We were therefore able to obtain further information concerning repeated attempts for more patients than those answering the questionnaire and were able to compare their answers against their medical notes. This clearly showed that some had underestimated their suicide attempts.

Why do young adults tend to under-declare their repeated suicide attempts?

Most repeated suicide attempts (70%) took place in the year following the reference admission. They therefore occurred soon after the reference attempt, while the questionnaire was answered 10 years after the fact. A possible explanation for this is that patients may amalgamate their recollection of this particularly painful time into a single episode, which in turn would explain the under-declaration of early repeated attempts observed in our survey. However, in a scientific study, researchers must dispose of precise information on repeated attempts since they can be correlated with repetitive suicidal behaviour throughout an individual’s life (Owens et al., 2002; Spirito et al., 2003; Suominen et al., 2004). The limits of questionnaire-type surveys are evident here. Thus in our study, if the patient’s answers alone are taken into account, the repeated attempt rate is 29.4%; if we base ourselves on the case notes, this figure rises to 55%.

Value of parent participation:

The results obtained for the correlations between the two types of questionnaire, “patient” and “parent”, suggest that parents could and indeed should be allowed to express themselves in this type of survey, although this is rarely the case. This would not only help parents understand more clearly their feelings about the suicide attempt, but would also involve them more closely in the subsequent care of their child. It is our firm belief that the input and cooperation of parents whose children experience severe psychological disturbances during adolescence is essential and even indispensable to the development of an appropriate therapeutic program.

Limits of the study

We believe that the greatest limitation of our study is the lack of a control population. The small initial sample (65 patients) is another bias. Our study design was based on a desire to have a uniform follow-up period for all patients. Despite the good response rate (55%), the final population is small (34 patients), but the follow-up period is uniform. Our questionnaire design was based on other...
surveys, particularly on that reported in the study by Laurent et al. (2000) but has not been validated by scientific studies or conference consensus. This bias is common to all studies. The few instruments available and lack of validated reference protocols designed to evaluate the outcome for suicidal patients not only accentuates statistical bias but leads to heterogeneous results. Comparison is sometimes difficult and response reliability uncertain, particularly where sensitive subjects such as repeated suicide attempts are concerned. To obtain maximum benefit from these surveys, which are indispensable to improving the care provided to suicidal adolescents, standard references recognised by the whole scientific community are required and remain to be defined. Finally a selection bias exists with regards to calculation of the repeated attempt rate. The subjects taken into account in this calculation were those cared for by the Nancy psychiatric teams after a further suicide attempt and/or who responded to the survey. Patients who had left town since 1994 (apart from those traced for the purposes of the survey) and those who had not sought medical care following a subsequent attempt were not taken into account. As alarming as it appears, the level we report is therefore the strict minimum.

Conclusion

We evaluated the psychosocial outcome and repeated suicide attempt rate in 65 suicidal adolescents 10 years after their reference attempt. Most of the 34 patients traced seemed to have satisfactory personal and professional lives, in contrast to the high level of repeated suicide attempts. Most of the adolescents repeated their suicide attempt in the year following the first attempt described. Repeated suicidal attempts during adolescence appear to be one of the rare risk factors for subsequent attempts within 10 years. This confirms the importance of preventive measures after a first suicide attempt. We believe that it is essential for psychiatric units caring for adolescents to pay particular attention to patients showing suicidal behaviour patterns, even though it is a recognised fact that this patient population is not very cooperative and frequently refuses to follow the psychotherapy prescribed (Litt, Cruskey & Rudd, 1983).

Acknowledgements/Conflict of Interest

The authors have no financial relationships or conflicts to disclose.

References


