

A Follow-up Study of Adolescent Attempted Suicide in Israel

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ABSTRACT

Objectives: (1) To compare the outcome of adolescent subjects who have made a suicide attempt with the outcome of matched controls, using their psychological and psychometric screening tests for military service at age 16.5 years. Their subsequent performance during military service between ages 18 and 21 was also evaluated. (2) To compare the prognosis of those attempters who received intensive psychiatric inpatient evaluation in a general hospital with the prognosis of those who received emergency room treatment only. **Method:** The computerized military records of 216 adolescents, who had been treated between 1987 and 1988 for attempted suicide in a general hospital emergency room, prior to their induction into the army, were evaluated. They were rated on the following tests: cognitive/educational performance and psychosocial adaptation, psychiatric and psychological health diagnoses, and performance during their military service between 1989 and 1992. **Results:** Although the female attempters had slightly more problems in the military than the controls, their overall prognosis was surprisingly good. The male suicide attempters did very poorly in their subsequent military service. There was no long-term advantage in having had a psychiatric evaluation performed in a hospital over a brief emergency room evaluation. Most differences between attempters and controls were in service performance, rather than in cognitive and psychometric tests. **Conclusions:** There may be marked differences between the sexes in the significance of attempted suicide and in the indications for intervention. The policy of mandatory general hospitalization for suicide attempters may need reevaluation. *J. Am. Acad. Child Adolesc. Psychiatry*, 2002, 41(11):1342–1349. **Key Words:** suicide, adolescents, prognosis, gender, intervention.

One of the most common tasks of psychiatrists dealing with adolescents is the evaluation and acute management of young people who have made a suicide attempt. However, knowledge about the natural course of adolescents following suicide attempts is limited (Burgess et al., 1998).

On the one hand, there is evidence to show that adolescent suicidal behavior should always be taken very seriously. On the other hand, many clinicians believe that overtreatment of these cases is not cost-effective and may even be counterproductive.

Suicidal behavior is one of the most significant risk factors for completed suicide among adolescents (Apter et al., 1995). Adolescents who successfully commit suicide are much more likely than community controls to have had a history of suicide attempts (Shaffer et al., 1988; Shaffi et al., 1985). Prospective studies also have indicated that the risk of completed suicide is substantially elevated in those who have attempted suicide (Garfinkel et al., 1982; Goldacre and Hawton, 1985).

Adolescent attempters also appear to be at risk for non-fatal reattempts, as well as other significant forms of morbidity (Brent, 1993). Although many follow-up studies of adolescent suicide attempters have been undertaken, it has often been difficult to contact these individuals, which has caused many methodological problems (Goldacre and Hawton, 1985). Repetitions of reported attempts

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range widely from 6.3% (Goldacre and Hawton, 1985) through 51% (Mehr et al., 1982), while reported risk for completed suicide following an attempt in adolescence range from 0% to 9%: <1% (6/2,492) (Goldacre and Hawton, 1985); 2% (67/1,727) (Otto, 1972); 2% (8/422) (Kotila and Lonnqvist, 1989); 5% (Kienhorst et al., 1987); and 9% (Motto, 1984). Lower fatal and nonfatal repetition rates are seen in non-psychiatrically hospitalized samples and in younger suicide attempters (Spirito et al., 1989). Male attempters subsequently commit suicide more often than female attempters do (Motto, 1984).

Apart from suicidal behavior, few studies have included other outcome variables (Spirito et al., 1992). There is, however, evidence that some populations of suicide attempters may show various forms of subsequent psychosocial dysfunction, such as changing of schools (Cohen-Sandler et al., 1982), leaving home (Barter et al., 1968), involvement in motor vehicle accidents (Mehr et al., 1982), and police arrest (Otto, 1972). A follow-up study of adolescent attempters by Spirito et al. (1992) found substantial rates of high-risk behavior, such as injuries, fighting, sex without contraception, and drunk or reckless driving. Adolescents who needed psychiatric hospitalization for a suicide attempt showed an increase in repetitive suicidal behavior and theft. Similarly, Curran et al. (1999) and Goldstone et al. (1999) also found a poor prognosis at follow-up.

There are, however, those who reject the view that attempted suicide in adolescence is, necessarily, a portent of morbid prognosis, especially in youngsters who have no history of psychiatric hospitalization (Committee on Adolescence, 1980; Dycian et al., 1994; Hassanyeh et al., 1989). In Europe, the term *deliberate self-harm* has replaced the term *attempted suicide*, reflecting a large body of literature that distinguishes between those who injure themselves with low seriousness of suicidal intent and medical lethality and those who do so with greater seriousness of intent (*ICD-10*). These studies point out that adolescent suicide attempts are frequently impulsive (Kessel, 1965), the result of an unpredictable acute interpersonal conflict (Kreitman, 1979). Unlike completed suicide, such attempts may be unrelated to illness and symptom severity (Newson-Smith and Hirsch, 1979). Zonda (1991) found that Hungarian adolescents who attempted suicide were far less likely to reattempt or to actually commit suicide than their adult counterparts. In addition, follow-up studies suggest that approximately half of all adolescents who attempt suicide improve psychologically

after a suicide attempt (Spirito et al., 1989). Angle et al. (1983) reported a favorable outcome for adolescents who attempt suicide, irrespective of lethality of intent, parental loss, depression, diagnosis, availability of support systems, and specific therapy. It has also been suggested that suicide attempts by males have a graver significance than attempted suicide by females (Kotila and Lonnqvist, 1989; Suokas and Lonnqvist, 1991).

One approach to reconciling these conflicting viewpoints on whether or not adolescent attempted suicide is an indicator of serious morbidity is to divide suicide attempters into separate groups—those with characteristics similar to those of completers and those without similar characteristics. Consequently, adolescent attempters could be divided into (1) “nonhopeless” patients with adjustment and conduct disorders who make unplanned attempts of variable intent and (2) “hopeless” patients—those who have affective disorder and who make serious attempts at suicide (Apter et al., 1995).

A major obstacle in the management of adolescent suicide attempters is their failure to attend and complete treatment (Trautman et al., 1991). The efficacy of such treatments is, as yet, uncertain (Komender et al., 1992; Spirito et al., 1989). It has been suggested that about half of the adolescents who attempt suicide do not receive adequate psychotherapy after their attempt. This may be because, unlike adult suicide attempters, most adolescents do not make a suicide attempt in order to obtain formal psychiatric care. It is also possible that emergency room intervention is sufficient in most cases (Committee on Adolescence, 1980; Felice, 1981). In addition, parental denial and psychopathology may interfere with treatment planning (Taylor and Stansfeld, 1984).

Some clinicians have attempted to deal with this problem of treatment noncompliance by mandating the admission of all adolescent suicide attempters to a general hospital for a brief period of therapy and evaluation (Litt et al., 1983; Swedo, 1989). Although this approach has not resulted in a significant increase in posthospitalization care (Swedo, 1989), this policy has been widely adopted and has recently been made legally compulsory in Israel (Israel Ministry of Health, 1995).

The present study addresses two questions:

1. What is the natural history of adolescents who make suicide attempts and who are not psychiatrically hospitalized or, more specifically, does a suicide attempt necessarily portend a grave prognosis?
2. Does mandatory hospitalization in a general hospital

for intensive evaluation have a beneficial effect on outcome?

The study made use of the fact that all 16-year-old adolescents in Israel undergo compulsory medical, psychological, and psychometric screening in preparation for their army service at age 18. After induction, their performance during their subsequent compulsory army service (two consecutive years for girls and three consecutive years for boys) provides useful data concerning their functional adaptation.

The specific hypotheses of the study were as follows:

1. In contrast to nonsuicidal controls, adolescents who had received treatment for a suicide attempt in a general hospital emergency room before their military induction at age 18 would (a) have more deviant functioning and more psychological problems on induction screening and (b) show more suicidal and other deviant behavior during their military service.
2. Adolescents treated for a suicide attempt in a general hospital emergency room before their induction screening at age 16, and who received an intensive psychiatric evaluation after mandatory admission to a general hospital, would have a better prognosis than would suicidal adolescents who received only brief emergency room interventions.

This project received approval from the ethics committee of the Ministry of Health and the Israel Defense Force. We were not granted permission to reinterview subjects for ethical reasons, and thus only computerized records were allowed to be examined.

METHOD

Population

We studied 216 consecutive subjects (175 females and 41 males), aged 13–17 years, who were treated for a suicide attempt in the emergency rooms of any of five university-affiliated general hospitals during an 18-month period (1987–1988) and who were subsequently screened for compulsory military service (1989–1992). All suicide attempts had occurred prior to their induction to the army. Sixty-five percent of the adolescents were younger than 16 when they attempted suicide and 35% were between the ages of 16 and 17. Although the average age of induction evaluation is 16.5 years, some youngsters are evaluated later. All our patients attempted suicide before the induction evaluation. The suicide attempts were made from 39 to 2,081 days before starting military service (mean 911 ± 350 days). Almost all the suicide attempts were by self-poisoning with over-the-counter medications, and none were associated with alcohol or street drugs. Suicide intent of the attempt was assessed by using a modification of the Beck Suicide Intent Scale, based on the chart review. The scale contains 20 items scored on a 3-point Likert scale from 0 to 2. The first nine items deal with circumstances related to the suicide attempt.

Items 10 to 15 assess patients' reports of the feelings at the time of the attempt, and items 16 to 20 describe other aspects of the suicide attempt. Because in most cases we were not able to assess all 20 items, each of the three scales was assessed as far as possible and then the final score was divided by the number of items to give an average score per item. Then each item was multiplied by the number of items in the original subscale to reach the score which would have been received if the full scale had been completed. The mean intent was 11.9 (SD 7.0 for females) and 12.6 (SD 6.9 for males) (not significant), indicating a mild to moderate intent to die. There were no differences between the hospitals.

The diagnoses, made at the time of the suicide attempts, were mostly nonspecific "adjustment/reactive disorders." These diagnoses were based on the *ICD-9* classification, which is non-criteria-based. More specifically, the following diagnoses were assigned: brief depressive reaction ($n = 110$), depressive disorder not elsewhere classified ($n = 43$), misery and unhappiness disorder ($n = 37$), histrionic personality disorder ($n = 16$), and borderline personality disorder ($n = 10$). It is not customary to take drug or alcohol levels of attempters because these problems were extremely infrequent in Israel at the time this study was undertaken. It is, however, difficult to interpret what these diagnoses mean because they were made by different clinicians in an unstructured manner. Fewer than 3% of the subjects received a major psychiatric diagnosis and were psychiatrically hospitalized, an exclusion criterion for this sample. These subjects were excluded because psychiatric hospitalization almost always precludes acceptance for military service in Israel.

All subjects who were treated in three of the hospitals ($n = 169$) received mandatory hospitalization for intensive psychiatric evaluation in a general hospital setting, while those who were treated in the other two hospitals ($n = 47$) received brief emergency room interventions and assessments, usually by a psychiatric resident. All evaluations included recommendations for further outpatient follow-up. Eleven of 169 subjects in the first group and 8 of 47 subjects in the second group had recommendations for antidepressant treatment, but we do not have information that indicates whether this recommendation was carried out. Our clinical experience suggests that this was probably not the case in the vast majority of cases. The decision whether or not to hospitalize patients for evaluation in the general hospital setting was made on the basis of the official policy prevailing at each hospital and not on the individual patient's clinical situation. In all hospitals, referral for psychiatric hospitalization was low (<3%), and there were no differences in these rates between hospitals. Subjects referred for psychiatric hospitalization were excluded from the study. There were no significant differences between hospitals on gender ratios, number of years of schooling (8–11), and socioeconomic status (II–III on the Hollingshead Redlich Scale).

The treatment in hospital included crisis intervention and routine standard care, consisting of supportive therapy and a more thorough evaluation for the adolescent and his parents. The exact nature of the treatment varied from hospital to hospital, but in all cases it was carried out by a child and adolescent psychiatrist. After hospitalization the patient was referred for continued outpatient treatment. In the vast majority of cases the adolescent did not follow up on the referral, although we do not have statistics on this.

Computerized preinduction and military service records, stripped of all identifying information, were obtained for each subject. Age- and sex-matched controls were chosen from individuals who had commenced their army service on the same day as the subjects and for whom no suicidal behavior prior to induction screening was known. All controls were tested by the same psychological technician who had interviewed the research subject. This was done to control for any bias of the different technicians.

Only 4 of the 217 suicide attempters admitted to having made a suicide attempt in their interview. Thus in the overwhelming majority of cases the psychological technician was blind to the status of the subjects. None of the controls admitted to a suicide attempt during their lifetime prior to induction. This was a retrospective study in that the subjects were selected by reason of having made a suicide attempt prior to induction and the controls were chosen retrospectively for having been inducted on the same day and being evaluated by the same technician as the subjects.

Preinduction Assessments

At about the age of 16.5 years, before commencing their service, all subjects and controls underwent the following routine screening procedures (Gal, 1986):

Medical Evaluation. Based on a standardized medical history and physical examination, potential inductees were assigned a Physical Health Fitness Rating on a nominal scale from 21 through 97.

Psychological Evaluation. Stage 1: All potential inductees were screened, initially, with the Israel Defense Force Preinduction Interview Schedule, a semistructured interview designed to predict soldiers' performance. This interview is conducted by trained psychological technicians. The psychological technicians are young female soldiers who have undergone special training in order to apply the various examinations and interviews used for induction. There is a very high interrater reliability between technicians, and their ability to predict future success in the army is very good (see Apter et al., 1993, and Gal, 1986). Whenever they suspect psychopathology, the adolescent is referred to a senior military psychiatrist for a more thorough evaluation. The results of this interview, combined with a series of tests, give a final Performance Prediction Score (PPS). The PPS is a composite scale containing four subscales: Education, Command of the Hebrew Language, Cognitive Index (CI), and Combat Suitability (CS). Education refers to the number of years spent at school, and Command of the Hebrew Language is based on tests in reading, writing, and speech. The CI is an intelligence evaluation score, derived from a version of Raven's Progressive Matrices and from an Otis-type verbal test. The CI ranges from 10 to 90, with a mean of 50. CS, which is part of the PPS, is a seven-item composite scale, consisting of Punctuality, Sense of Duty, Sociability, Activity, Independence, Pride, and Motivation for Service. The CS score ranges from 10 to 40. The CS is not administered to girls, and their PPS is calculated on the basis of the other three indices only.

The four components of the PPS are empirically weighted, based on continuous validation studies. It is a highly stable and reliable index with a total validity coefficient of 0.52. The criterion measure for successful service is the soldier's rank on discharge from compulsory service. The scale ranges from 42 to 56, where a higher score indicates a higher quality of soldier and combat capability, as measured at the time of induction.

Stage 2: When the Preinduction Interview indicated more than very mild psychopathology, or the subject endorsed more than a threshold number of items on a structured questionnaire, the adolescent underwent a more thorough evaluation by an experienced clinician. The sensitivity of the preinduction interview was such that a substantial number (25%) of potential inductees were referred for this more intensive evaluation. Where warranted, *ICD-9* diagnoses were assigned and recorded. Seventeen attempters received such a diagnosis (dependent personality disorder, $n = 11$; identity disorder, $n = 5$; oppositional disorder, $n = 1$). Unfortunately, we do not have good descriptions of the various psychiatric illnesses that were diagnosed on induction. This is because the *ICD-9* system did not specify criteria. In no case is treatment offered by the induction psychiatrist, as this is left to the unit mental health officers in the field. However,

inasmuch as all the subjects reported in this study were deemed to be psychiatrically fit for service, it seems probable that none were seriously psychiatrically impaired.

On the basis of the preinduction assessments, each potential inductee was assigned an overall fitness rating which largely determined the assigned area of service: front line, support, or base areas.

Active Duty Service Data

Computerized personnel records documented the changes in medical or mental health status, military performance, and disciplinary difficulties during military service.

RESULTS

Two subjects from the research group and none from the control group committed suicide. One male subject killed himself during his military service. A female soldier was discharged from the military 1 month after commencing her service and was psychiatrically hospitalized. She committed suicide 3 months after leaving the army.

Two control subjects (one male and one female) attempted suicide while in the military, compared with seven research subjects (four boys and three girls). This difference was not statistically significant.

The suicide attempters, as a group, had marginally significantly lower PPS scores than the controls ($p < .05$) and significantly more psychiatric diagnoses on induction ($p < .01$). No significant differences were found on all the other measured variables. These variables included CI, maximal physical and mental health rating, medical or psychiatric discharge from military service, lowering of physical and/or mental health fitness rating while in the service, psychosocial adjustment index, the number of subjects who went to jail or went absent without leave (AWOL), medical or psychiatric hospitalization, and promotion (Table 1). Although the attempters made more suicide attempts during their military service, this difference was not statistically significant (Table 1).

When male suicide ($n = 41$) attempters were compared with male controls, several significant differences were found. Compared with the controls, the male research subjects showed more psychiatric illness diagnosed on preinduction screening ($Z = 3.5$, $p < .001$), more occurrences of premature discharge from military service ($Z = 2.21$, $p < .02$), and shorter military service ($Z = 2.72$, $p < .05$). Their physical and/or mental health fitness rating during their service was also lowered more often ($Z = 2.85$, $p < .01$). No significant differences were found regarding PPS, CI, adjustment difficulty index, hospitalizations during service (medical or psychiatric), jail

TABLE 1
Comparison of 216 Military Teenage Suicide Attempters and Controls

Variable	Teenage Suicide Attempters	Control Group
PPS ^a (mean ± SD)	49.4 ± 3.1	50.0 ± 3.5*
Cognitive Index (mean ± SD)	48.7 ± 10.4	50.7 ± 10.7
Maximal physical and mental health rating (%)	58	69
Medical or psychiatric discharge from military service (%)	3.3	1.9
Lowering of physical and mental health rating during service (%)	17.0	11.5
Psychiatric diagnosis on induction screening (%)	8	2**
Poor adjustment index (%)	6	4
Jail sentence (%)	12	7*
Absent without leave (%)	9	6
General hospitalization (%)	23	14
Promotion (%)	39.4	45.8
Suicide attempts (%)	3.2	0.9

^a The Performance Prediction Score (PPS) in females does not include the Combat Suitability Score, which is assessed only in males.
* $p < .05$; ** $p < .01$.

sentences, AWOL, and promotion (Table 2). Although 9.7% of male attempters made reattempts compared with 2.4% of controls, this difference did not reach statistical significance (Table 2).

TABLE 2
Comparison of 41 Military Male Teenage Suicide Attempters and Controls

Variable	Teenage Suicide Attempters	Control Group
PPS (mean ± SD)	47.2 ± 3.3	48.0 ± 3.6
Cognitive Index (mean ± SD)	43.7 ± 10.7	45.1 ± 9.7
Adjustment Difficulty Index (%)	6.0	4.6
Psychiatric diagnosis on induction screening (%)	24.4	7.3***
Psychiatric discharge from service (%)	34.1	12.2***
Length of army service (days)	743	998*
Lowering of physical and mental health rating during service (%)	46.4	26.8**
General hospitalization (%)	31.7	19.5
Jail sentence (%)	34.4	21.9
Absent without leave (%)	21.4	17.1
Promotion (%)	33.3	28.5
Suicide attempts (%)	9.7	2.4

Note: PPS = Performance Prediction Score.

* $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE 3
Comparison of 175 Military Female Teenage Suicide Attempters and Controls

Variable	Teenage Suicide Attempters	Control Group
PPS (mean ± SD) ^a	49.9 ± 3.4	50.5 ± 3.9*
Cognitive Index (mean ± SD)	49.9 ± 10.6	52.1 ± 9.7
Psychiatric diagnosis on induction screening (%)	5.7	0**
Lowering of physical and mental health rating during service (%)	10.3	8
Full completion of army service (%)	82.3	82.2
Length of army service (days)	647	664
General hospitalization (%)	21.1	13.1*
Jail sentence (%)	8.6	2.9*
Absent without leave (%)	5.4	3.4
Promotion (%)	42.3	49.7
Suicide attempts (%)	1.7	0.6

^a The Performance Prediction Score (PPS) in females does not include the Combat Suitability Score, which is assessed only in males.
* $p < .05$; ** $p < .01$.

When female attempters ($n = 175$) were compared with female controls, several significant differences were noted. Compared with the controls, the female research subjects had lower PPS ($T = -1.78$, $p < .05$), psychiatric illness diagnosed more often on induction screening ($Z = 2.85$, $p < .01$), more jail sentences ($Z = 2.07$, $p < .05$), and more medical hospitalizations ($Z = 1.84$, $p < .05$). No significant differences were found regarding CI, lowering of physical and mental health rating during service, rates of full completion of army service, length of army service, AWOL, promotion, and suicidal behavior during service (Table 3).

Comparisons between the group of suicidal teenagers who had been intensively evaluated in a general hospital inpatient unit and those who had been discharged after a brief emergency room evaluation showed no differences, apart from a significantly higher AWOL rate ($Z = 2.11$, $p < .05$) in the inpatient evaluation group (Table 4).

DISCUSSION

Although definitions of "attempted suicide" vary, it is obvious that nonfatal suicidal behaviors have become extremely common worldwide. Peak incidences occur in young people rather than in older people, as is the case for completed suicide (Diekstra, 1994). Community studies published after 1985 show year prevalence estimates of 2.4% through 20% (Dubow et al., 1989) and lifetime

TABLE 4
Teenage Suicide Attempters Who Did and Did
Not Receive General Hospital Observation

Variable	Suicide Attempters After General Hospital Inpatient Observation (<i>n</i> = 169)	Suicide Attempters Discharged Directly After ER Assessment (<i>n</i> = 47)
PPS (mean \pm SD) ^a	49.3 \pm 4.1	49.4 \pm 4.3
Cognitive index (mean \pm SD)	49.7 \pm 9.5	48.55 \pm 9.6
Psychiatric diagnosis on induction (%)	10.1	6.4
Hospitalization during service (%)	24.3	19.2
Absent without leave (%)	10.7	2.1*
Jail sentence (%)	13.0	14.9
Lowering of physical and mental health rating during service (%)	21.3	15.9
Promotion (%)	40.8	34.0
Suicide attempts (%)	3	4.3

Note: ER = emergency room.

^a The Performance Prediction Score (PPS) in females does not include the Combat Suitability Score which is assessed only in males.

* *p* < .05.

prevalence rates varying from 2.2% through 20% (Andrews and Lewinsohn, 1992; Diekstra, 1989; Harkavy-Friedman et al., 1987; Kienhorst et al., 1990; Smith and Crawford, 1986). These very high estimates highlight what clinicians in the field have always known: that nonfatal suicidal behaviors place a major burden on emergency psychiatric services and that a rational basis for determining management policy must be both cost-effective and based on follow-up research.

The first hypothesis of this study was that subjects who had made a suicide attempt during adolescence would have a worse prognosis than controls, as reflected in their preinduction screening data and subsequent performance during compulsory military service. In support of this hypothesis, the adolescent attempters received significantly more psychiatric diagnoses and had lower PPS than the controls at the time of preinduction screening and were significantly more likely to have served time in a military prison. Although the psychiatric diagnoses were very nonspecific, they do indicate that the postattempt subjects did make a poorer impression at induction on the psychological technicians and military psychiatrists than did the controls. In addition, as shown in Tables 1, 2, and 3, the suicide attempters showed a general trend toward a poor performance during their army service.

Nevertheless, a close inspection of the results reveals a more complex picture.

Compared with those of the controls, the suicide attempters showed a trend only toward lower psychosocial, cognitive/educational, and psychometric scores at preinduction that did not reach statistical significance on any specific measure. All significant differences were in the areas of psychiatric diagnosis and actual military functioning.

The female recruits who had attempted suicide during adolescence did surprisingly well during the stressful period of their military service. Ninety percent completed their whole service period without having their mental or physical health ratings lowered. More than 80% completed their full period of service and nearly 60% received promotions. Fewer than 2% showed self-harmful behaviors during service. Male recruits with a history of suicide attempt, on the other hand, showed a much worse prognosis than both the controls and the females, with a third receiving a psychiatric diagnosis and a third being discharged from the army for psychiatric reasons. Almost half of the male subjects had their mental/physical health ratings lowered during their service. The apparent low rate of deliberate self-harm during service is possibly due to the fact that so many were given an early discharge.

These results are similar to those reported in a Finnish study by Kotila and Lonnqvist (1989), who found that boys who attempted suicide had more serious physical and social problems, and were more malfunctioning, than girls who attempted suicide. Male suicidal behavior was also more likely to be related to alcohol and eventual death by violence. As in most studies (Diekstra, 1994), our sample of adolescent suicide attempters was also predominantly female, although in Israel, as elsewhere in the developed world, males are more likely to commit suicide than females (Apter et al., 1993). Therefore, suicidal behavior may well have different implications, depending on gender. It is interesting that both in our study and the Finnish study, there was no difference between the sexes in lethality and/or intent in the index suicidal act. There is, as yet, no satisfactory explanation for these differences between the sexes, although differences in cognitive development (Motto, 1984) have been postulated. Hawton and Goldacre (1982) have also proposed that self-poisoning may be less acceptable among boys than girls; thus only the more severely disturbed boys will resort to suicidal behaviors. This may be especially true of Israel, where males are encouraged not to complain and to keep their feelings to themselves (King and Apter, 1996). The reduc-

tion in suicidal behavior of the girls may be related to developmental maturation. In addition, military service may have provided a stable, coherent, and organizing context for the suicide attempters, thus contributing to the girls' good prognosis; service in the Israeli army often serves as a "second chance" for adolescents who have had difficulties. This is especially pertinent for girls, for whom army service may be less stressful because they do not usually serve in combat situations. We do not, however, have any data to support this notion, and it may be worthwhile to examine this hypothesis in a future study.

The second hypothesis of this study was that the adolescent suicide attempters who received intensive psychiatric evaluation after mandatory admission to a general hospital would have a better prognosis than would those who received only brief emergency room interventions. This hypothesis was particularly important to test because, subsequent to completion of the data collection and analysis phase of this project, the Israel Ministry of Health mandated the policy of general hospital admission for psychiatric evaluation of all adolescents. This national policy decision was made on the basis of the impression that, in Israel, as in most countries, adolescent suicide attempters do not cooperate with treatment (Komender et al., 1992; Spirito et al., 1989). The effectiveness of such a policy, however, is called into question by our finding that the subjects who received mandatory general hospital inpatient evaluations did no better on all examined outcome measures than those who received brief emergency room evaluations and had marginally worse rates of going AWOL.

Conclusions and Clinical Implications

Our findings seem to imply that arbitrary general hospitalization of all adolescent suicide attempters for intensive psychiatric evaluations may not be justified, especially in girls without major psychiatric illness and/or substance abuse. This is especially true in an era in which funding for psychiatric services is scarce. More aggressive interventions may, however, be justified in the case of boys. Alternative methods need to be developed and evaluated with adolescent suicide attempters who are seen in the emergency setting in order to promote higher rates of compliance with assessment and treatment. The specific short-term ambulatory interventions developed by Hawton and Catalan (1981) and Rotheram-Borus et al. (1994) represent steps in this direction. In addition, perhaps more specific care such as cognitive-behavioral therapy might be more effective, but this would have to be evaluated in a different study.

Limitations

These conclusions must, of course, be tempered by the obvious limitations of this study. On the one hand, this study did not include adolescent suicide attempters who did not seek treatment at a general hospital emergency room. On the other hand, it also excluded the small proportion of attempters with a psychiatric illness serious enough to warrant psychiatric hospitalization. Almost all the subjects used low-lethality methods such as over-the-counter medications, and intent to die was only moderate. This limits the generalizability of the results. Furthermore, the study was not purely a prospective one. Diagnostic data at the time of the suicidal acts were not sufficiently specific or standardized to be useful. This was a naturalistic study using *ICD-9* criteria, the official classification system used in Israel at the time. Thus the diagnoses represented the routine diagnostic practices and clinical care given at university-affiliated hospitals in Tel Aviv during that period. We thus cannot provide meaningful statistics about the real prevalence of psychiatric illness in the suicide attempters, although in light of the good prognosis of most of the subjects, it would seem that most were not seriously psychiatrically impaired at the time of their attempt. The study was based on the computerized records of the subjects' assessments. Their military performance and the subjects themselves were not interviewed directly. While it is true that the parameters used to evaluate functioning are peculiar to the Israeli army, they are very specific indicators of how the military records service performance. They also give a good idea of how these young people were performing in a structured but stressful situation. Nonetheless, we feel that these measures of functioning are as good as those usually found in this very problematic literature. All the hospitals involved were teaching hospitals affiliated with the Tel Aviv University Medical School, which does not have one central hospital; therefore, although the standard of care is, presumably, generally high, differences in treatment may have existed across the different sites. Finally, the very low rates of alcohol and substance abuse that existed in Israel at the time of the study may limit the generalization of our findings to other countries or epochs.

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