

Factors Associated With Early Dropout From Adolescent Psychiatric Outpatient Treatment

MIRJAMI PELKONEN, PH.D., MAURI MARTTUNEN, M.D., PH.D., PEKKA LAIPPALA, PH.D.,
AND JOUKO LÖNNQVIST, M.D., PH.D.

ABSTRACT

Objective: To examine background factors, psychopathology, and psychosocial impairment among adolescents complying with or dropping out early from outpatient psychiatric treatment. **Method:** Family background, psychiatric history, and other data were collected prospectively on 143 male and 154 female outpatients aged 12 to 22 years. *DSM-III-R* psychiatric diagnoses were assessed at the end of treatment. **Results:** Fifty-three adolescents (17.8%) attended 1 or 2 treatment appointments, and 33 of them (11.1% of 297) then dropped out; 50.5% of the total attended 3 to 13, and 31.6% attended 14 or more appointments. Low parental socioeconomic status was more common among the early dropouts than the other patient groups (88%, 69%, 63%, respectively). The early dropouts had had more problems with the law than the adolescents attending 14 or more appointments (18%, 6%), but less suicidal behavior (24%, 56%, respectively). Among the early dropouts, mood disorders were less common (21%, 49%), especially major depression (0%, 20%), and substance abuse was more common (9%, 0%) than among patients attending 14 or more appointments. **Conclusions:** Low parental socioeconomic status, not having mood disorder, not having psychotropic medication, and having substance abuse were associated with early dropout of adolescents from outpatient psychiatric treatment. *J. Am. Acad. Child Adolesc. Psychiatry*, 2000, 39(3):329–336. **Key Words:** adolescence, outpatient, dropout, adherence, psychiatric treatment.

Given the significant undertreatment and marked persistence of mental disorders among adolescents (Feehan et al., 1993; Fergusson et al., 1993; Keller et al., 1991), their dropout from mental health services is a serious problem. As many as 45% to 77% (Armbruster and Fallon, 1994; Trautman et al., 1993) of child and adolescent patients do not even enter psychiatric treatment, or they terminate it prematurely.

Accepted September 21, 1999.

Dr. Pelkonen is with the Department of Mental Health and Alcohol Research, National Public Health Institute, Helsinki, and Tampere School of Public Health, University of Tampere, Tampere, Finland. Dr. Marttunen is with the Department of Mental Health and Alcohol Research, National Public Health Institute, Helsinki, and Peijas Hospital, Vantaa, Finland. Professor Laippala is with Tampere School of Public Health, University of Tampere and Tampere University Hospital, Tampere, Finland. Professor Lönnqvist is with the Department of Mental Health and Alcohol Research, National Public Health Institute, Helsinki.

The study was financially supported by the Academy of Finland and Medical Research Fund of Tampere University Hospital.

Reprint requests to Dr. Pelkonen, Department of Mental Health and Alcohol Research, National Public Health Institute, Mannerheimintie 166, FIN-00300 Helsinki, Finland; e-mail: Mirjami.Pelkonen@ktl.fi.

0890-8567/00/3903-0329©2000 by the American Academy of Child and Adolescent Psychiatry.

Factors associating with this attrition reportedly differ with the clinical phase of treatment (Armbruster and Schwab-Stone, 1994). During the intake or evaluation phase, social disadvantage (Armbruster and Fallon, 1994; Kazdin and Mazurick, 1994; Viale-Val et al., 1984), severe psychosocial impairment (Kazdin et al., 1994), externalizing symptoms (Viale-Val et al., 1984), and older age and male sex (Piacentini et al., 1995) seem to characterize those who drop out of treatment. On the other hand, Target and Fonagy (1994) reported that disruptive behavior or parental socioeconomic disadvantage did not predict treatment attrition among children and adolescents with emotional disorders. Additional knowledge of the detailed characteristics of adolescents dropping out early from outpatient psychiatric treatment is clearly needed.

This study aimed to characterize adolescents who drop out early from outpatient psychiatric treatment. We also compared them with other adolescent outpatients in terms of background, psychopathology, and psychosocial impairment. We expected behavior problems and familial socioeconomic disadvantage to be associated with early dropout from treatment.

METHOD

We studied adolescents aged 12 to 22 years referred for their first treatment at a psychiatric outpatient clinic for adolescents during the 5-year period 1990 through 1994, whose index treatment terminated by March 15, 1998. The catchment area of the clinic covers the approximately 190,000 inhabitants (about 15 % adolescents) of Vantaa and Kerava, an urban and suburban area close to Helsinki, Finland's capital. The clinic offers eclectic psychiatric treatment including individual psychotherapy, family consultations, and psychotropic medication when appropriate.

The clinic contact usually begins with a telephone call from an adolescent, his or her parent, or a health or social care professional. Adolescents are initially screened by a psychiatric staff member in one or

more telephone interviews lasting 15 to 45 minutes. Semistructured telephone data coding sheets are used.

Of the 481 adolescents offered treatment during the study period (Fig. 1), 64 were referred to other outpatient services because of age or catchment area boundaries. Thirteen adolescents were referred back to the original service, 9 were found to be in need of acute inpatient treatment, and 9 were referred to other outpatient services (e.g., due to associated somatic illness).

Of those counseled only by telephone (Fig. 1), the consultation consisted of general information about the referral process in 6 cases. In 9 cases the referring person (e.g., a parent or doctor) had not discussed referral with the troubled youngster, who then failed to take any subsequent contact. In the other 27 cases the referring person wanted advice only.

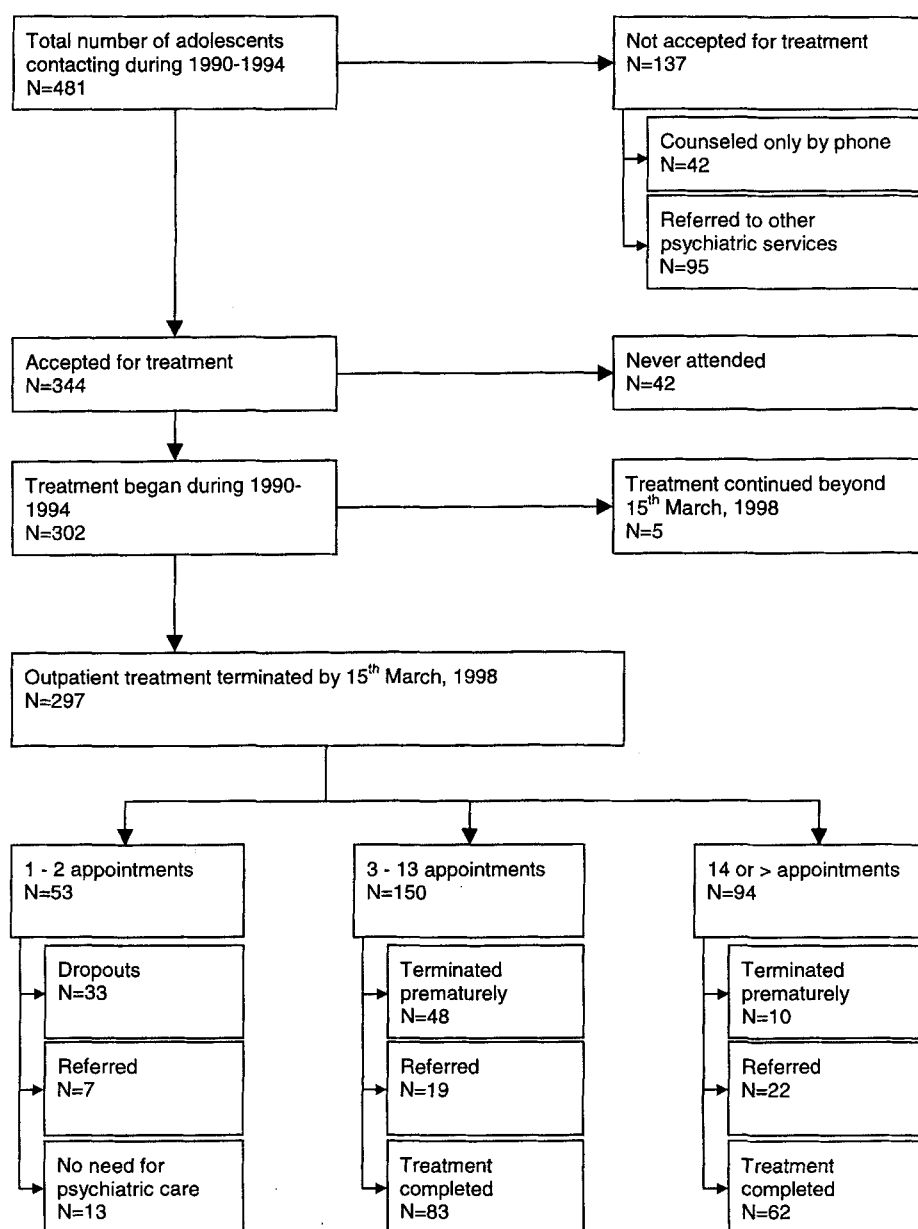


Fig. 1 Outcomes of adolescents contacting the clinic during 1990-1994.

Of the 344 adolescents who were accepted for treatment, 42 missed their initial appointment and 5 patients' treatment continued after March 15, 1998; these adolescents were excluded from the study analyses. The remaining 297 adolescents formed the subjects of this study (Fig. 1).

The major problems reported during the initial telephone call were classified as externalizing symptoms (e.g., stealing, aggressive behavior) or internalizing symptoms (e.g., depressive feelings, interpersonal problems, phobias). This classification was based on the data reported in the telephone coding sheets. Externalizing symptoms were equally common among the adolescents who were not accepted and those who were accepted for treatment (30 [21.9%] of 137 not accepted and 71 [20.6%] of 344 accepted subjects) (Fig. 1). However, externalizing symptoms were more common among subjects who were accepted for treatment but never attended the clinic compared with those who were accepted and attended (15/42 [35.7%] who never attended and 56/302 [18.5%] who attended; $\chi^2 = 6.6$, $df = 1$, $p = .010$).

There were no statistically significant differences between patients accepted for treatment who never attended their scheduled appointments ($n = 42$) and the study subjects ($n = 297$) in terms of age (mean age 16.9, SD 2.4 among those who missed their visits versus mean age 16.5, SD 2.3 among the referred), sex (males 23/42 [54.8%] versus 143/297 [48.1%], respectively), or the referring person (health care professional in 20/42 [47.6%] versus 105/297 [35.4%], respectively). During the initial telephone call, suicidal ideation was reported in 6 (14.3%) of 42 who never attended and in 40 (13.5%) of 297 who attended the clinic; 4 (9.5%) subjects who never attended and 22 (7.4%) who attended had reportedly attempted suicide.

Data Collection

Data on the adolescents scheduled for treatment but who never attended an appointment personally were based on the semistructured telephone data coding sheets. Age, sex, and major complaint (reason for referral) were used in the analyses, as well as information on previous or current suicidal ideation or suicide attempts and referring person.

Data collection on the clinic attendees took place prospectively in 2 stages. During the first 2 appointments information was gathered on family-related characteristics, the adolescents' previous psychiatric treatment, current life situation, previous and current suicidal ideation and suicide attempts, and on the referring person. The level of the patients' psychosocial functioning was assessed with the Global Assessment Scale (GAS) (Endicott et al., 1976), applying the 10-class version used in Finland (Lönqvist, 1984). The clinic staff was trained in the use of the GAS. However, the training did not include assessment of interrater reliability between the clinicians. To approximate the reliability of the assessments, 2 of the authors (M.P. and M.M.), blind to the original GAS scores, independently assessed the GAS scores of 30 randomly selected outpatients on the basis of their medical charts. The interrater reliability of the 2 assessments yielded κ coefficients of 0.79 at both treatment entry and the last appointment. Cases with disagreement were then discussed to create consensus GAS scores. The interrater reliability between the original clinicians' GAS scores and the 2 researchers' consensus GAS scores yielded a κ coefficient of 0.75 at treatment entry and 0.87 at the last appointment.

At the end of the treatment the following data were gathered: number of scheduled and kept individual and family appointments, psychotropic medication, suicidal ideation and suicide attempts during the treatment, level of psychosocial functioning, and recommended after-care. The final psychiatric diagnoses according to *DSM-III-R* criteria (American Psychiatric Association, 1987) were assigned by the treating psychiatrist at the end of the treatment. Multiple diagnoses on *DSM-III-R* Axes I and II were allowed.

Concepts

The socioeconomic status (SES) of the adolescents' families, based on the occupation of the parent considered as the guardian, was first categorized with the 9-grade classification officially used in Finland (Central Statistical Office of Finland, 1987). For the analyses, SES was classified as high (classes 1–3) when the guardian was a self-employed worker or upper-level employee and low (classes 4–9) when the guardian was a lower-level employee or manual worker. Parental support during the year preceding treatment was considered weakened if there was evidence of parental alcohol abuse, severe psychiatric disorder, or attempted or completed suicide or violence (Marttunen et al., 1994; Pelkonen et al., 1997b). The assessment was made on the basis of the data gathered during the first 2 appointments. Subjects with previous or current suicide attempts, suicide threats, or suicidal ideation were coded as suicidal. Adolescents who had been arrested, charged, or convicted of an offense were classified as having had problems with the law. If treatment did not continue after the evaluation phase, or the key problems had not been worked through and need for care was still evident, the patient was assessed as having terminated treatment prematurely (Pelkonen et al., 1997a). Although this was based on the therapist's judgments, the final assessment was made by 1 researcher and in unclear cases in consensus between 2 researchers.

Statistical Analysis

In the descriptive part of the data analysis, cross-tabulations were analyzed using the χ^2 or Fisher exact test, depending on the form of the table and sample size. The equality of the means was tested using the t test or one-way analysis of variance (ANOVA). In the latter the detailed analysis was carried out using the Bonferroni procedure, with .05 as the level of significance in multiple comparisons. The final multivariate analysis was based on stepwise polychotomous logistic regression modeling. This procedure is a generalization of regular logistic regression modeling, in which the outcome has only 2 classes; in polychotomous modeling the outcome has more than 2 classes. The idea is to fix one class to the reference class and simultaneously compare it with other classes. The results are supported by odds ratios using 95% confidence intervals. In our analysis the dropouts were the reference class, and the other classes with 3 to 13 or 14 or more appointments were then compared with the dropout class. In the statistical literature this modeling is also referred to as multinomial logistic regression or generalized logistic modeling. More comprehensive presentations can be found in McGullagh (1980). In interpreting of the results, the level of significance was set equal to .05, but the exact p values are given in the text. The computations were performed using SPSS/Win (Norusis, 1993) on a PC and BMDP Statistical Software (Dixon et al., 1990) on a SUN/UNIX mainframe.

RESULTS

Of the 297 study subjects, 53 (17.8%) attended only 1 or 2 appointments. Seven of these received a referral to other treatment services, 5 to a psychiatric hospital. No need for psychiatric care was judged in 13 others. Thus, 33 patients (11.1% of 297) were assessed as having dropped out early from treatment.

Of the 297 patients, 150 (50.5%) attended 3 to 13 treatment appointments (within class: mean 6.4, median 6, SD 2.9) and 94 patients (31.6%) 14 or more (within

TABLE 1
Familial and Individual Characteristics of Outpatients

| | Early Dropouts (1) (<i>n</i> = 33) | | Patients With 3–13 Sessions (2) (<i>n</i> = 150) | | Patients with ≥14 Sessions (3) (<i>n</i> = 94) | | χ^2 : <i>p</i> Value | | |
|-------------------------------|--|------|---|------|---|------|---------------------------|---------|---------|
| | No. | % | No. | % | No. | % | Total Table | 1 vs. 2 | 1 vs. 3 |
| Family background | | | | | | | | | |
| Parental divorce | 17 | 51.5 | 83 | 55.3 | 35 | 37.2 | .021 | NS | NS |
| Weakened parental support | 15 | 45.5 | 52 | 34.7 | 26 | 27.7 | NS | | |
| Low parental SES | 29 | 87.9 | 104 | 69.3 | 59 | 62.8 | .027 | .030 | .007 |
| Living at home | 24 | 72.7 | 111 | 74.0 | 80 | 85.1 | NS | | |
| Taken into foster care | 7 | 21.2 | 23 | 15.3 | 3 | 3.2 | .004 | NS | <.0001 |
| Individual characteristics | | | | | | | | | |
| Male sex | 17 | 51.5 | 73 | 48.7 | 38 | 40.4 | NS | | |
| Any previous psychiatric care | 10 | 30.3 | 69 | 46.0 | 34 | 36.2 | NS | | |
| Previous outpatient care | 10 | 30.3 | 64 | 42.7 | 29 | 30.9 | NS | | |
| Previous inpatient care | 3 | 9.1 | 19 | 12.7 | 9 | 9.6 | NS | | |
| Problems with the law | 6 | 18.2 | 32 | 21.3 | 6 | 6.4 | .007 | NS | .046 |

Note: SES = socioeconomic status; NS = not significant.

class: range 14–164, mean 40.3, median 26, SD 31.5) (Tables 1 and 2). The rationale for using 14 visits as a cut-off point was that when the patients with 3 or more appointments were studied, the median number of appointments was 14.

There were no statistically significant differences in mean ages between the 3 groups (early dropouts 16.9 years [SD 2.1, range 13–21], 3–13 appointments 16.5 years [SD 2.3, range 12–22], 14 or more appointments 16.3 years [SD 2.3, range 13–22]).

Characteristics of the Early Dropouts

The early dropouts were characterized by low parental SES, foster care, and problems with the law (Table 1). They had less often had suicidal behavior (suicidal ideation or suicide attempts) than those with 14 or more appointments (8/33 [24.2%] early dropouts versus 53/94 [56.4%] with 14 or more appointments; $\chi^2 = 12.4$, *df* = 2, *p* = .002). Three (9.1%) early dropouts, 27 (18.0%) of those with 3 to 13 appointments, and 20 (21.3%) of those with 14 or more appointments had attempted suicide.

TABLE 2
Treatment and Psychiatric Diagnosis

| | Early Dropouts (1) (<i>n</i> = 33) | | Patients With 3–13 Sessions (2) (<i>n</i> = 150) | | Patients with ≥14 Sessions (3) (<i>n</i> = 94) | | χ^2 : <i>p</i> Value | | |
|--|--|------|---|------|---|------|---------------------------|---------|---------|
| | No. | % | No. | % | No. | % | Total Table | 1 vs. 2 | 1 vs. 3 |
| Referral by health care professionals | 11 | 33.3 | 54 | 36.0 | 32 | 34.0 | NS | | |
| Psychotropic medication | 3 | 9.1 | 22 | 14.7 | 26 | 27.7 | .013 | NS | .029 |
| Psychiatric diagnosis | | | | | | | | | |
| Mood disorders | 7 | 21.2 | 43 | 28.9 | 46 | 48.9 | .001 | NS | .005 |
| Major depression | 0 | 0.0 | 13 | 8.7 | 19 | 20.2 | .002 | NS | .005 |
| Adjustment disorders | 12 | 36.4 | 55 | 36.7 | 19 | 20.2 | .020 | NS | NS |
| Anxiety disorders | 2 | 6.1 | 9 | 6.0 | 18 | 19.1 | .003 | NS | NS |
| Disruptive disorders | 2 | 6.1 | 15 | 10.0 | 2 | 2.1 | NS | | |
| Personality disorder or identity disorder | 5 | 15.2 | 23 | 15.3 | 17 | 18.1 | NS | | |
| Substance use disorders | 3 | 9.1 | 6 | 4.0 | 0 | 0.0 | .030 | NS | .016 |
| Psychotic disorders | 0 | 0.0 | 7 | 4.7 | 4 | 4.3 | NS | | |
| Other disorders ^a | 5 | 15.2 | 9 | 6.0 | 4 | 4.3 | NS | | |
| Comorbid diagnoses | 5 | 15.2 | 22 | 14.7 | 17 | 18.1 | NS | | |

Note: NS = not significant.

^a Mostly unspecified nonpsychotic mental disorders.

Compared with the other patient groups, substance abuse disorders among the dropouts were more common, but mood disorders, especially major depression, were less common (Table 2).

At the start of treatment there were no statistically significant differences in psychosocial functioning between the 3 groups (mean GAS score: early dropouts 4.9, 3–13 appointments 4.9, 14 or more appointments 4.7; ANOVA $p = .08$). However, at the end of the treatment the early dropouts were more severely impaired than the others (mean GAS score: early dropouts 4.9, 3–13 appointments 5.4, 14 or more appointments 5.6; ANOVA $p = .009$). Detailed analyses revealed that the difference was due to the early dropouts.

Early dropouts attended at the clinic only once or twice, and thus their psychosocial functioning remained at the same low level. In contrast to the early dropouts, in both groups with 3 or more appointments psychosocial functioning improved during the treatment (mean GAS score 4.9 versus 5.4, $t = -6.26$, $df = 149$, $p < .0001$ among patients with 3–13 appointments, and 4.7 versus 5.6, $t = -8.77$, $df = 93$, $p < .0001$ among those with 14 or more appointments).

Comparison Between Early Dropouts and Patients Who Terminated Treatment Prematurely

Forty-eight (32.0% of 150) of the patients with 3 to 13 appointments (within class: range 3–11, mean 5.4, median 5.0, SD 2.6) and 10 (10.6% of 94) of those with 14 or more appointments (within class: range 15–37, mean 22.3, median 19.0, SD 8.3) terminated treatment prematurely. These patients differed from the early dropouts only in terms of ever having had suicidal ideation or suicide attempts (8/33 [24.2%] among the early dropouts versus 29/58 [50.0%] among those who terminated prematurely; $\chi^2 = 5.8$, $df = 1$, $p = .016$).

Psychosocial functioning did not improve during treatment among the early dropouts as it did among the patients who terminated prematurely (mean GAS score 4.6 at the first and 5.0 at the last appointment among the premature terminators; $t = -4.0$, $df = 57$, $p < .0001$).

Multivariate Associations

As mentioned earlier, in the polychotomous logistic regression model the dropouts were taken as the reference class, to which 3 to 13 and 14 or more classes were compared simultaneously. The results are summarized in Table 3. In the procedure, a series of backward stepwise poly-

chotomous logistic regression analyses was first carried out. Major depression and substance use disorders could not be included in the model because of empty cells (Table 2). The final analysis did not include variables which were statistically nonsignificant in previous polychotomous logistic regression analyses (e.g., parental divorce, foster care, GAS at last appointment, adjustment disorder, anxiety disorder). In the final analysis the following variables were entered into the model: parental SES, problems with the law, sex, mood disorder, psychotropic medication, suicidal behavior, GAS at treatment entry, and age. In comparison with patients attending 3 to 13 appointments, those who dropped out early had lower SES (Table 3). Moreover, compared with attending 14 or more appointments, dropping out early was associated with not having a mood disorder, not receiving psychotropic medication, having low SES, and being older.

DISCUSSION

Few published studies have concerned adolescents dropping out early from outpatient psychiatric treatment (Wierzbicki and Pekarik, 1993). Comparisons are complicated by variations in clinic populations, procedures, and measures, as well as in age, gender, diagnostic issues, and definitions of dropouts. In this study the proportion of adolescents (11%) dropping out early from treatment in spite of need for care accords with previous research (Piacentini et al., 1995; Trautman et al., 1993; Viale-Val et al., 1984). Dropping out early was associated with behavior problems, substance abuse, and low parental SES. Having no mood disorder and not being suicidal were also associated with early dropout.

Previous research on adolescents has also reported low parental SES (Viale-Val et al., 1984) and unsupportive family attitude (Vander Stoep et al., 1991) to associate with dropping out early from inpatient and outpatient treatment. Comparable results have been found among children (Armbruster and Fallon, 1994; Kazdin and Mazurick, 1994; Prinz and Miller, 1994), although not in all studies (Blood and Cornwall, 1994; Target and Fonagy, 1994). According to Rotheram-Borus et al. (1996), parental involvement appeared to be central to adolescent suicide attempters' attendance at their first session, but the impact of ongoing parental involvement was unclear. In Finland, because of public health and social care organizations, people have equal access to mental health services regardless of their socioeconomic status. Thus, the impact of low

TABLE 3

Summary of Polychotomous Regression: Statistically Significant Predictors Associated With Dropping Out Early From Treatment Among 277 Outpatient Adolescents (Dropout Class as a Reference)

| Outcome | Predictor | Coefficient | SE | Odds Ratio | 95% CI |
|--|--------------------------------|-------------|------|------------|-----------|
| Dropouts vs. patients with 3–13 appointments | Problems with the law | | | | |
| | No | 0.47 | 0.52 | 1.6 | 0.58–4.5 |
| | Yes | | | Reference | |
| | Parental SES | | | | |
| | High | –1.24 | 0.57 | 0.29 | 0.09–0.89 |
| | Low | | | Reference | |
| | Mood disorders | | | | |
| | No | 0.32 | 0.47 | 1.4 | 0.55–3.5 |
| | Yes | | | Reference | |
| | Taking psychotropic medication | | | | |
| Dropouts vs. patients with ≥14 appointments | No | 0.70 | 0.66 | 2.0 | 0.55–7.4 |
| | Yes | | | Reference | |
| | Age | | | | |
| | 12–16 years | –0.66 | 0.41 | 0.52 | 0.23–1.2 |
| | 17–22 years | | | Reference | |
| | Problems with the law | | | | |
| | No | –0.85 | 0.66 | 0.43 | 0.12–1.6 |
| | Yes | | | Reference | |
| | Parental SES | | | | |
| | High | –1.48 | 0.59 | 0.23 | 0.07–0.72 |
| | Low | | | Reference | |
| | Mood disorders | | | | |
| | No | 1.12 | 0.49 | 3.1 | 1.2–8.0 |
| | Yes | | | Reference | |
| | Taking psychotropic medication | | | | |
| | No | 1.59 | 0.68 | 4.9 | 1.3–18 |
| | Yes | | | Reference | |
| | Age | | | | |
| | 12–16 years | –0.97 | 0.45 | 0.38 | 0.16–0.91 |
| | 17–22 years | | | Reference | |

Note: Goodness-of-fit $\chi^2 = 172.86$, $df = 190$, $p = .81$. SES = socioeconomic status; CI = confidence interval.

parental SES on adolescents' dropping out of treatment may vary between countries because of different ways health care services are organized.

In this study, a history of behavior problems was more common among adolescents who were accepted for treatment but never attended the clinic personally compared with those who kept their appointments. Among the adolescents attending the clinic, the early dropouts were characterized by problems with the law and many of them were taken into foster care. Probably because of low frequencies in many variables, these findings did not hold up in multivariate analyses. Thus, our results may only suggest that behavior problems (Gabbard and Coyne, 1987; Vander Stoep et al., 1991) and substance abuse (Gilbert et al., 1994) associate with early dropout from adolescent psychiatric treatment. However, one study found that previous legal problems did not associate with dropping out of treatment among adolescent males with

substance abuse (Blood and Cornwall, 1994). Furthermore, Gould et al. (1985) and Armbruster and Fallon (1994) reported that child and adolescent outpatients with externalizing disorders were at no more risk of dropping out than those with internalizing disorders. Obviously, this issue needs to be addressed in future studies.

Suicidal behavior did not characterize the early dropouts in this study, as also reported by Gabbard and Coyne (1987) among antisocial inpatient adolescents. These findings contrast with reports of suicidal adolescents being less compliant than those with delinquent or impulsive behavior (Viale-Val et al., 1984) or nonsuicidal outpatients (Trautman et al., 1993). Comparisons between studies are complicated because of differences in study samples and definitions of suicidal behavior. In this study, in multivariate analyses the adolescents were dichotomously classified as suicidal whether they had suicidal ideation or had attempted suicide, whereas in

some studies only suicide attempters were examined (e.g., Trautman et al., 1993).

Early dropouts were older than those attending 14 or more appointments. Comparable results were reported by Piacentini et al. (1995) among adolescent suicide attempters, but differing results by Gilbert et al. (1994) in a sample of depressed adolescent outpatients and by Trautman et al. (1993) in suicidal adolescents.

Our finding that psychosocial functioning among the early dropouts did not improve during their brief treatment as it did in both other patient groups, whether or not they terminated treatment prematurely, conforms with results on young people with antisocial behavior (Kazdin et al., 1994). Psychotropic medication was less common among the early dropouts, this finding probably reflecting the clinical practice to prescribe medication to adolescents only after thorough assessment.

Methodology

The strengths of this study were the large, consecutively referred adolescent outpatient population and the comprehensive, prospective data collection. We used the GAS (Endicott et al., 1976), which is a reliable measure of changes in psychosocial functioning among adolescents (Pelkonen et al., 1998). Our definition of dropping out included dropping out after the first or second appointment as well as the therapist's and the researcher's judgment of the need for care. Such a definition is acceptable according to Wierzbicki and Pekarik (1993), although a more comprehensive measure with explicit criteria to define dropout should be developed. A diagnostic classification with explicit criteria (*DSM-III-R*) was used to assess the clinical psychiatric diagnoses among the patients who attended at the clinic. The use of clinical diagnoses may have underestimated comorbidity.

Limitations

The overall frequencies of antisocial behavior, disruptive disorders, and substance use fulfilling the *DSM-III-R* diagnostic criteria for conduct disorder or antisocial personality were relatively low. This may reflect the organization of Finnish adolescent health care, whereby young people with problems with the law and with alcohol and drug problems are not usually referred to adolescent psychiatric services but to services for substance abusers.

The classification of the major complaint (externalizing or internalizing symptoms) was based on comprehensive data collection by telephone; however, the possibility

remains that some symptoms may have been underreported during the telephone call.

An additional limitation was the dichotomous rather than continuous nature of many variables. Our concept of weakened parental support was a combination of parental alcohol abuse, severe psychiatric disorder, attempted or completed suicide, or violence, precluding analysis of those individual parental characteristics. More detailed instruments in the assessment of parental difficulties should be used in future studies. To minimize the number of false-positive results, suicidality was defined to include only unambiguous suicidal ideation, suicide threats, and suicide attempts. In the multivariate analyses the classification used was dichotomous.

Because of low frequencies in some cells, the associations in multivariate analyses remained low. In addition, because of empty cells, e.g., in substance use disorders (Table 2), these variables could not be included in the multivariate analyses. In the multivariate analyses some variables remained in the analyses, strengthening the statistical significance of the model, although the 95% confidence intervals were wide.

Finally, results from this predominantly urban and suburban clinical adolescent population cannot be directly generalized to other populations in countries with different kinds of health care services.

Clinical Implications

Externalizing symptoms were common among adolescents who were accepted for treatment but who never attended the clinic personally. It seems that special efforts are needed during initial contacts to minimize early treatment attrition among young people with externalizing behavior. The referral process of the troubled youngsters with behavior problems was often preceded by problems with the law, and many were in foster care. Collaboration between the patient, parents, and social and health care professionals may well minimize the number of "no shows."

Early dropout from treatment was associated with psychiatric diagnosis, indicating that careful diagnostic assessment is essential for identifying adolescents at high risk of dropping out. The comorbid psychiatric disorders and family-related difficulties among these patients suggest the need for multimodal treatment approaches, including family interventions and individual or group psychotherapy (American Academy of Child and Adolescent Psychiatry, 1997). Thorough assessment and comprehensive collection of information should begin with the first con-

tact with psychiatric services so that appropriate treatments will be available for these young people.

REFERENCES

- American Academy of Child and Adolescent Psychiatry (1997), Practice parameters for the assessment and treatment of children and adolescents with conduct disorder. *J Am Acad Child Adolesc Psychiatry* 36(suppl):122S-139S
- American Psychiatric Association (1987), *Diagnostic and Statistical Manual of Mental Disorders, 3rd edition-revised (DSM-III-R)*. Washington, DC: American Psychiatric Association
- Armbruster P, Fallon T (1994), Clinical, sociodemographic and systems risk factors for attrition in a children's mental health clinic. *Am J Orthopsychiatry* 64:577-585
- Armbruster P, Schwab-Stone ME (1994), Sociodemographic characteristics of dropouts from a child guidance clinic. *Hosp Community Psychiatry* 45:804-808
- Blood L, Cornwall A (1994), Pretreatment variables that predict completion of an adolescent substance abuse treatment program. *J Nerv Ment Dis* 182:14-19
- Central Statistical Office of Finland (1987), *Classification of Occupations*. Helsinki: Central Statistical Office of Finland
- Dixon WJ, Brown MB, Engelman L, Jennrich RI (1990), *BMDP Statistical Software Manual*, Vol 2. Berkeley: University of California Press
- Endicott J, Spitzer RL, Fleiss JL, Cohen J (1976), The Global Assessment Scale. *Arch Gen Psychiatry* 33:766-771
- Feehan M, McGee R, Williams SM (1993), Mental health disorders from age 15 to 18 years. *J Am Acad Child Adolesc Psychiatry* 32:1118-1126
- Fergusson DM, Horwood LJ, Lynskey MT (1993), Prevalence and comorbidity of DSM-III-R diagnoses in a birth cohort of 15 years olds. *J Am Acad Child Adolesc Psychiatry* 32:1127-1134
- Gabbard GO, Coyne L (1987), Predictors of response of antisocial patients to hospital treatment. *Hosp Community Psychiatry* 38:1181-1185
- Gilbert M, Fine S, Haley G (1994), Factors associated with dropout from group psychotherapy with depressed adolescents. *Can J Psychiatry* 39:358-359
- Gould MS, Shaffer D, Kaplan D (1985), The characteristics of dropouts from a child psychiatry clinic. *J Am Acad Child Psychiatry* 24:316-328
- Kazdin AE, Mazurick JL (1994), Dropping out of child psychotherapy: distinguishing early and late dropouts over the course of treatment. *J Consult Clin Psychol* 62:1069-1074
- Kazdin AE, Mazurick JL, Siegel TC (1994), Treatment outcome among children with externalizing disorder who terminate prematurely versus those who complete psychotherapy. *J Am Acad Child Adolesc Psychiatry* 33:549-557
- Keller MB, Lavori PW, Beardslee WR, Wunder J, Ryan N (1991), Depression in children and adolescents: new data on "undertreatment" and a literature review on the efficacy of available treatments. *J Affect Disord* 21:163-171
- Lönnqvist J (1984), Evaluation of psychiatric treatment. *Psychiatr Fenn* 15:29-40
- Marttunen MJ, Aro HM, Henriksson MM, Lönnqvist JK (1994), Psychosocial stressors more common in adolescent suicides with alcohol abuse compared with depressive adolescent suicides. *J Am Acad Child Adolesc Psychiatry* 33:490-497
- McGullagh P (1980), Regression models for ordinal data. *J R Stat Soc B* 42:109-142
- Norusis MJ (1993), *SPSS for Windows, Advanced Statistics*, Release 6.0. Chicago: SPSS Inc
- Pelkonen M, Marttunen M, Laippala P, Lönnqvist J, Aro H (1997a), Psychosocial functioning in adolescent psychiatric patients: a prospective study on changes in psychosocial functioning among severely and moderately impaired adolescent out-patients. *Acta Psychiatr Scand* 96:217-224
- Pelkonen M, Marttunen M, Pulkkinen E, Laippala P, Aro H (1997b), Characteristics of out-patient adolescents with suicidal tendencies. *Acta Psychiatr Scand* 95:100-107
- Pelkonen M, Marttunen M, Pulkkinen E, Laippala P, Lönnqvist J, Aro H (1998), Disability pensions in severely disturbed in-patient adolescents. *Br J Psychiatry* 172:159-163
- Piacentini J, Rotheram-Borus MJ, Gillis JR et al. (1995), Demographic predictors of treatment attendance among adolescent suicide attempters. *J Consult Clin Psychol* 63:469-473
- Prinz RJ, Miller GE (1994), Family-based treatment for childhood antisocial behavior: experimental influences on dropout and engagement. *J Consult Clin Psychol* 62:645-650
- Rotheram-Borus MJ, Piacentini J, van Rossem R et al. (1996), Enhancing treatment adherence with a specialized emergency room program for adolescent suicide attempters. *J Am Acad Child Adolesc Psychiatry* 35:654-663
- Target M, Fonagy P (1994), Efficacy of psychoanalysis for children with emotional disorders. *J Am Acad Child Adolesc Psychiatry* 33:361-371
- Trautman PD, Stewart N, Morishima A (1993), Are adolescent suicide attempters noncompliant with outpatient care? *J Am Acad Child Adolesc Psychiatry* 32:89-94
- Vander Stoep A, Bohn P, Melville E (1991), A model for predicting discharge against medical advice from adolescent residential treatment. *Hosp Community Psychiatry* 42:725-728
- Viale-Val G, Rosenthal RH, Curtiss G, Marohn RC (1984), Dropout from adolescent psychotherapy: a preliminary study. *J Am Acad Child Psychiatry* 23:562-568
- Wierzbicki M, Pekarik G (1993), A meta-analysis of psychotherapy dropout. *Prof Psychol Res Pract* 24:190-195