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Walter, Daniel; Hautmann, Christopher; Rizk, Saada; Petermann, Maïke; Minkus, Johannes; Sinzig, Judith; Lehmkuhl, Gerd; Doepfner, Manfred

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Short term effects of inpatient cognitive behavioral treatment of adolescents with anxious-depressed school absenteeism – an observational study

Daniel Walter, Ph.D.

Christopher Hautmann, Ph.D.

Saada Rizk

Maike Petermann

Johannes Minkus

Judith Sinzig, M.D.

Gerd Lehmkuhl, M.D.

Manfred Doepfner, Ph.D.

Department for Child and Adolescent Psychiatry and Psychotherapy, University of Cologne

Robert-Koch-Str. 10

50931 Cologne

Germany

Corresponding author:

Dr. Daniel Walter

Phone: 00492214786439

Fax: 00492214783962

Mail: daniel.walter@netcologne.de

Abstract

This observational study examined the changes during inpatient cognitive-behavioral treatment (CBT) of adolescents with chronic anxious-depressive school absenteeism with or without comorbid disruptive symptoms. One hundred forty seven adolescents (aged 12-18 years) with a specific phobia or other anxiety disorder or a depressive episode or a mixed disorder of conduct and emotions and who had completely ceased to attend school or showed irregular school attendance underwent an inpatient cognitive-behavioral treatment. A further 16 patients aborted the treatment during the first day and were not included in the analyses. The treatment was manual guided and also included parents. Assessments were made pre-inpatient treatment, immediately post-inpatient treatment and at 2-months follow-up. School attendance was the primary outcome variable and secondary outcomes were composite scores of a range of adolescent- and parent-rated mental health problems.

Overall, results show a considerable decline of school absenteeism and mental health problems during treatment and subsequent follow-up. Continuous school attendance was achieved by 87.1% of the sample at the end of inpatient treatment and by 82.3% at 2 months follow-up. Comorbid symptoms of anxiety, depression, disruptive and insufficient learning behavior were significantly reduced from pre to follow-up, with effect sizes for the composite scores ranging from 0.44 to 1.15 ($p < .001$).

This large observational study in adolescents with school absenteeism and a mixture of emotional and disruptive symptoms is the first to show the benefits of inpatient therapy that included cognitive-behavioral therapy and access to a special school with expertise on teaching children and adolescents with psychiatric disorders. The results must be interpreted conservatively because of the lack of a control condition.

Key words: school absenteeism, adolescents, CBT, inpatient treatment, anxious-depressed

Introduction

School absenteeism is the term used to describe the absence without permission from school that is linked to environmental, social or psychiatric conditions [16] and is a common problem in Western societies, occurring in about 5 percent of all children and adolescents. It may result in a high risk for the development of mental health problems in affected youth [12, 16]. The duration of absence from school can vary from a few lessons to several years [16, 31].

School absenteeism is not a distinct diagnostic category in either the ICD-10 [34] or the DSM-IV [1]. It integrates a wide variety of different diagnoses, is generally determined as multifactorial, and the specific contribution of each underlying cause has not been analyzed so far [12, 13, 16]. Youths who refuse to attend school often show different forms of phobic or other anxiety disorders (i.e. test anxiety or social phobia), symptoms of depression and somatization, disruptive behavior, insufficient social skills (i.e. insufficient conflict solving behavior), dysfunctions in achievement (i.e. deficits in organizational skills or learning strategies) and excessive academic demands in relation to intellectual abilities or learning disabilities [5, 15]. Within schools, absenteeism is abetted by oversized classes, aggressive schoolmates, high performance demands or adverse teaching circumstances [16]. Patients with school absenteeism often have parents with mental health problems (e.g. phobic or other anxiety disorders or depressive episodes) [26], and many of these families are faced with additional burdens (e.g. unemployment, cramped lodging, single-parent families) [24, 29]. Many of the affected youths have parents showing dysfunctional parenting strategies [24]. In addition, familial accumulations of school absenteeism (mainly siblings) and adverse reinforcement conditions for school absenteeism (i.e. parental attachment and discharge in case of avoidance) promote school absenteeism [17].

Prolonged school absenteeism is associated with a higher probability for the development of delinquent behavior, school dropout, and a broad range of economic, psychiatric, social, and partnership problems in adulthood [16]. Adolescents showing school absenteeism and comorbid mental health problems, such as depressive episodes, social phobia, or conduct disorders, are at great risk of an adverse development [24].

Because of the frequency, impairment and risk for an adverse development due to school absenteeism, interventions have been developed and at least partly evaluated. However, most of the publications consist of clinical case vignettes or studies with a small sample size. The results of these studies must be interpreted conservatively as many have contradictory findings [16, 20, 21].

Overall, 15 studies (8 single-case and 7 group-design) examined empirical evidence for the efficacy of psychosocial interventions for school absenteeism [for review, see 25]. Mainly cognitive-behavioral interventions such as contingency management, cognitive restructuring, problem solving, therapist modeling, graduated in vivo exposures, role-play training were evaluated and patient-, parent- and teacher-focused interventions were used. In general, the results suggest that both school absenteeism and mental health problems can be reduced using these intervention strategies.

Only three studies examining the effects of a manualized behavioral or cognitive-behavioral therapy have been carried out with sufficient experimental control [4, 22, 23]. However, all three studies excluded youths with both school absenteeism and disruptive behavior problems, focused on outpatient therapy and mostly included only a small proportion of youths with chronic school absenteeism. Nevertheless, these studies demonstrated a strong reduction of school absenteeism with cognitive-behavioral therapy. Only one of the studies also examined inpatient treatment effects in a subgroup of 16 adolescents [4]. In this non-randomized study, the subjects in the inpatient group showed a more severe school absenteeism than those in the outpatient treatment group; at 1-year follow-up, only 28% of the inpatient treated youths attended school continuously [4]. However, the youths receiving inpatient therapy were treated under routine care conditions and did not receive manual-guided cognitive-behavioral therapy. Besides separation from parents, educational, occupational, and pharmacotherapeutic interventions were implemented. The study also had methodological shortcomings, such as a small sample size and a lack of control for additional interventions [4].

Thus, research on the treatment of school absenteeism is at an early stage. Previous investigations have focused mainly on outpatient cognitive-behavioral therapy in children and adolescents with primarily short-term anxiety-based school absenteeism. Results of these studies indicate the effectiveness of this treatment approach.

No study has examined the effects of inpatient cognitive-behavioral therapy on adolescents with extended school absenteeism. Moreover, there is a lack of studies on school absenting youths with comorbid mental health problems, such as a mixture of phobic or other anxiety disorders and disruptive behavior [16], who are the most common absentees and show the greatest impairment [13]. Other aspects that remain to be explored include studies of youths with chronic school absenteeism (i.e. long-lasting absence from school) and/or a failure of outpatient therapy.

The present observational study tries to make a first step towards addressing some of these unmet needs by examining the course of school absenteeism and comorbid mental health problems during inpatient therapy that includes cognitive-behavioral treatment and during a subsequent two-month follow-up period in a large group of adolescents with anxiety/depression-based school absenteeism (with or without accompanying disruptive behavior problems). At study entry, most of the youngsters showed prolonged absence rates and more than half of them had already failed outpatient therapy focusing on school absenteeism.

The study hypotheses are that there is a clinically significant reduction of school absenteeism during inpatient therapy and that this effect remains stable (i.e. no significant change in school absenteeism) over the 2-month follow-up period. Moreover, we expect a clinically significant reduction in additional mental health problems from intake to 2-months follow-up.

Methods

Participants

To be included in the study, which was approved by the ethics committee of the University of Cologne, adolescents had to meet the following inclusion criteria: age between 12 and 18 years, informed written consent of youth and parents to participate in the study, at least 14 days without school attendance or at least 50 skipped classes on the last school report. In addition, adolescents had to meet the ICD-10 criteria for at least one of the following disorders: specific phobia or other anxiety disorder, depressive episode, mixed disorder of conduct and emotions. Parents had to agree to weekly parent appointments. Exclusion criteria were mental retardation, pervasive developmental disorders, schizophrenia, schizotypal and delusional disorders, disorders of adult personality and behavior, eating disorders, heavy use of alcohol or other drugs, conduct disorder without comorbid anxiety or depressive disorder, concurrent psychological or psychopharmacological treatment at study enrolment.

Between January 2004 and April 2008, 224 adolescents with incomplete school attendance based on parent information (i.e. reports of their child missing at least single classes at school) were identified from the outpatient unit of the Department of Child and Adolescent Psychiatry or from psychiatric private practice in Cologne and surroundings of less than 50 kilometers distance. These adolescents

and their parents were invited to a consultation at the outpatient clinic, during which the first author informed them of the study details and assessed whether the inclusion and exclusion criteria were met. Confirmation of school absenteeism was obtained via telephone interview with the teacher of the school that the adolescent was supposed to be attending. Of these subjects, 163 fulfilled the entry criteria and started inpatient treatment, but 16 stopped treatment on the first day. A total of 147 adolescents completed the treatment and were included in the analysis. The 16 adolescents who stopped treatment on day 1 showed a severe separation anxiety disorder that could not be treated in an open inpatient setting and were treated in a closed inpatient setting elsewhere. The treatment and outcome of these 16 patients is not reported in this paper. The two main reasons for exclusion of the 61 adolescents not fulfilling the criteria were refusal to give informed consent to participate and a conduct disorder without additional anxious-depressive disorders.

Participants in the study were 84 boys and 63 girls aged 12.1 to 18.1 years ($M=15.1$; $SD=1.5$). Intelligence measured using the Wechsler Intelligence Scale for Children (WISC-III) or the Wechsler Adult Intelligence Scale (WAIS) was between $IQ=71$ and $IQ=135$ ($IQ: M=101.0$; $SD=13.9$). At study enrolment, the different types of public school attended by participants prior to initiation of school absenteeism were: basic level ($n=38$), medium level ($n=43$), all levels combined ($n=17$), high level ($n=32$), a school for vocational training ($n=7$) and a special school for children with emotional and behavioral disturbances ($n=10$). Overall, 60 adolescents had repeated a school grade once, and a further 11 had repeated a grade at least twice. Of the 147 participants, 121 (82.3%) had completely ceased attending school, with a mean absence at study start of 19.3 weeks ($Mdn=14.0$; $SD=19.4$; range: 2-108 weeks); the other 26 (17.7%) attended school irregularly, with an average of $M=111.3$ skipped classes on the last school report ($SD=97.6$; range: 6-324 classes). Before study entry, 103 (70.1%) adolescents had received at least one outpatient psychotherapy, 41 (27.9%) had been treated at least once in day care or had received inpatient treatment due to school absenteeism, 27 (18.4%) had received at least one occupational or speech therapy, and 30 (20.4%) had received pharmacotherapy with psychostimulants or selective serotonin reuptake inhibitors without substantial effects on school absenteeism. All of these treatments were finished before study enrolment.

The 147 adolescents in the study met the following ICD-10 criteria: 58 (39.5%) showed a specific phobia or other anxiety disorder (F40.0 ($n=7$), F40.1 ($n=26$), F40.2 ($n=5$), F41.2 ($n=1$), F93.0 ($n=9$), F93.2 ($n=10$)); 29 (19.7%) had a depressive episode (F32.0 ($n=3$), F32.1 ($n=20$), F32.2 ($n=6$)); 49

(33.3%) had a mixed disorder of conduct and emotions (F92.0 ($n=16$), F92.8 ($n=33$)), and 11 (7.5%) had an obsessive-compulsive disorder (F42.1 ($n=2$), F42.2 ($n=9$)) as well as a depressive episode (F32.0 ($n=6$), F32.1 ($n=5$)).

Procedure

Assessment for study eligibility took place one to six weeks before the start of treatment. Participants were included in the study consecutively, with a maximum of 10 subjects receiving inpatient treatment at the same time. The first assessment (including completion of standardized questionnaires rated by adolescents and parents, as well as collection of information on school attendance) was at the beginning of inpatient treatment (pre). At discharge (post), information on the main dependent variable (school attendance) was collected from teachers and adolescent ratings of anxiety/depression and learning behavior were obtained. The last assessment took place two months after the end of inpatient treatment (follow-up). This consisted of a telephone interview with one of the parents (mostly mothers), where a list of standardized questions elicited information on school attendance (regular/irregular; number of missed classes/days) and therapeutic support during the follow-up period (type and intensity of outpatient treatment). In addition, several adolescent and parent rating scales were sent by mail for completion and return using a stamped self-addressed envelope.

The main analyses of the questionnaires/rating scales compared the pre and follow-up assessments. At these assessment points, adolescents and parents were asked to consider the previous two months when rating the items. Thus, the two months before the beginning of inpatient treatment were compared with the two months after the end of inpatient treatment. Teacher ratings of child behavior problems were not assessed because the school absenteeism meant that teachers could not accurately appraise youth behavior at the pre assessment.

Measures

Diagnostic Interviews: All adolescents and parents were interviewed using the clinical rating scales of the DISYPS-KJ [9], a German semi-structured clinical interview that is based on the diagnostic criteria of DSM-IV and ICD-10. Reliability and validity of the German version of this interview has been shown [8]. Reliability coefficients for a field- and a clinic-referred sample of children and adolescents

showed good internal consistencies (range from .69 to .95) and correlations between clinical ratings based on parent and adolescent interviews were in a moderate range [14].

School Attendance: The main outcome variable was school attendance during the preceding two weeks, which was operationalized as a dichotomous variable (continuous vs. discontinuous = missed at least one day). At study start (pre) and at the end of inpatient treatment (post), information on school absenteeism was obtained from the teacher of the school the adolescent was attending. At follow-up, school attendance information was gathered from parents during the telephone interview and, in cases of irregular school attendance during the preceding two weeks of the follow-up assessment, the exact number of days of irregular school attendance since discharge was obtained. During the inpatient treatment, a close cooperation between teachers of the school the youngsters were attending at this time (public or clinic school) and parents was established. That is, teachers were advised to inform parents immediately if the youngster had missed a class. Additionally, teachers were instructed to inform project members of cases of school absenteeism. At the post and follow-up assessments, it was also determined whether the participant had been reintegrated into the regular school system, still required a special school setting (clinic school or special school for children with emotional and behavioral disturbances), or if they had dropped out from school without any alternative employment or activity at the time of the assessment.

Self report and parent report: The following rating scales were completed: the German versions of the Child Behavior Checklist (CBCL; [2]) and the Youth Self Report (YSR; [3]). These widely used instruments assess behavioral problems and competencies in children and adolescents. The parent version consists of 118 items and the adolescent version consists of 112 items, which were aggregated into eight narrowband syndrome scales and three broadband scales (Internalizing Problems, Externalizing Problems, Total Problems). Three competency scales (Social, School, and Community Activities) can be summated to obtain the Total Competence score. Reliability and validity of the German version of these instruments has been shown [7, 10, 27]. Symptoms of anxiety, depression and Attention-Deficit/Hyperactivity Disorder (ADHD), were assessed by parents and adolescents using the symptom checklists of the DISYPS-KJ assessing symptom criteria of ICD-10 and DSM-IV [9]. The Symptom Checklist for anxiety/phobic disorders (SCL-APD) consists of 30 items assessing the diagnostic criteria of separation anxiety disorder, generalized anxiety disorder, specific and social phobia. The Symptom Checklist for depressive episodes (SCL-MDD) consists of 29

symptoms assessing the diagnostic criteria of depressive episodes, while the Symptom Checklist for Attention-Deficit and Hyperactivity Disorder (SCL-ADHD) consists of 20 items assessing the 18 symptom criteria. Good reliability and validity of these instruments have been shown [8]. Additionally, the German version of the Childhood Depression Inventory (CDI) was rated by the patients (Depressionsinventar für Kinder und Jugendliche, DIKJ; [28]) and consists of 26 items summarized into one total score. The German version has been shown to have excellent psychometric properties [28]. To assess dysfunctions in achievement motivation and organizational skills, the Learning and Achievement Behavior Inventory (Lern- und Arbeitsverhaltensinventar, LAVI; [19]) was rated by the patients. LAVI consists of 58 items summarized into three scales (achievement motivation, coping with academic failure, learning strategies). This instrument has been shown to have sufficient reliability and validity [19]. Academic fears were assessed using the patient-rated Anxiety Scale for Students (Angstfragebogen für Schüler, AFS; [33]), which consists of four scales (test anxiety, manifest anxiety, deficient achievement motivation and social acceptability) of 50 dichotomous items. AFS has been shown to have acceptable reliability and validity [33]. The German version of the revised Fear Survey Schedule for Children FSSCR (Phobiefragebogen für Kinder, PHOKI; [11]) was also rated by the patients. It consists of 98 items forming seven scales, of which the three scales of separation anxiety, social anxiety, and fear of school were used. The PHOKI has been shown to have good validity and reliability [11].

Therapy setting and treatment integrity

The study took place within a purpose-built inpatient unit of the Department for Child and Adolescent Psychiatry and Psychotherapy of the University of Cologne in Germany. Youngsters in the inpatient unit can attend a special school which has teachers who have expertise in teaching children with psychiatric diseases (clinic school). The cognitive-behavioral treatment was provided by three psychologists and one resident in child and adolescent psychiatry with accomplished training in child and adolescent psychotherapy. Therapists were trained in the treatment of adolescents with school absenteeism over a 6-week period by two of the authors. Treatment integrity was assured in weekly 2-hour sessions supervised by the first author. Further treatment planning for each adolescent was done in additional weekly team sessions with the first author.

Two to three individual adolescent treatment sessions and one parent or family session were conducted per week. Additionally, staff of the inpatient unit (trained for the study) implemented high frequent graduated exposure and homework trainings, and focused specifically on the enhancement of leisure activities with the youngsters. If necessary, a social coworker coordinated the cooperation with the youth welfare office.

In severe cases of school absenteeism with complete absence from school for more than three months ($n=72$), the patients attended the clinic school. Less severe cases were integrated directly into their regular local/home schools. For the severe cases, therapists and teachers of the clinic school held a conference every 2 weeks and developed a plan to reintegrate the youngster into the regular school setting. A return to the last school attended prior to treatment or a change to another regular school was realized as promptly as possible. Therapists had one telephone appointment with the teachers of the home school to obtain diagnostic information at the beginning of the treatment and made two or three telephone calls with them to coordinate the patient's return to the home school or a change of school.

The cognitive-behavioral treatment used within the individual treatment sessions was manual guided and based on two different treatment manuals. The first one adapts self-management therapy for working with adolescents (treatment program SELBST; [32]) and consists of the enhancement of therapy motivation, the development of a common health belief model and the development of therapeutic goals. Specific cognitive-behavioral interventions were based on the second treatment manual to treat school absenteeism [18] and were individual for each adolescent. The main topics of this individualized cognitive-behavioral treatment were exposure therapy, assembly of leisure activities, cognitive restructuring, social skills and parent trainings to enhance educational skills [30]. Adolescent, parent and teacher focused interventions were implemented.

Table 1 gives an overview of the most frequently implemented intervention strategies. In addition to these interventions, 18 adolescents (12.2%) received psychopharmacological interventions (fluoxetine and methylphenidate) during inpatient treatment because the cognitive-behavioral interventions alone did not show sufficient effects. Of these 18 patients, 11 were discharged with medication: 7 with fluoxetine and 4 with methylphenidate. Fluoxetine was used for the treatment of moderate or severe depressive episodes and methylphenidate was used in those patients who received the additional diagnosis of ADHD during their inpatient treatment. For the remaining 7 adolescents, an additional

effect of the medication could not be identified based on clinical judgment and, therefore, the medication was stopped during inpatient treatment.

Insert table 1 about here

The inpatient cognitive-behavioral treatment lasted on average for 7.8 weeks (range: 3 to 18); 60.2% of the sample had a treatment duration of 4 to 10 weeks. Participants spent the weekends at home (Saturday morning until Sunday evening). Once or twice during the last two weeks of the inpatient treatment, adolescents spent one night at home to control treatment effects and to ensure that a regular school attendance could be realized. Additionally, a seamless outpatient cognitive-behavioral treatment at a training institute for child and adolescent psychotherapy was offered at the end of the inpatient treatment. This outpatient treatment was provided by different therapists from the training institute and was not manual guided, but was supervised one hour per month by accredited supervisors. At the 2-month follow-up assessment, 80 adolescents (59.9%) had received outpatient cognitive-behavioral treatment with on average 6 treatment sessions ($SD=3.3$) in the previous 8 weeks.

Statistical Analysis

For the primary outcome variable, the binomial test was conducted to test whether the proportion of school attendees and school absentees changed from pre to post and to follow-up.

For the secondary analyses of changes in adolescent and parent reported mental health problems from pre to follow-up, the outcome scores were aggregated into composite scores to reduce the inflation of an alpha error. The computation of composite scores was assured by exploratory principal component analysis with varimax rotation. A 5 factor solution was used as the basis of the definition of the composite scores. Subsequent analysis of internal consistency for the new build scales further affirmed this approach (Cronbach $\alpha >.70$). For computation of the composite scores, single scales were z-transformed based on the pre scores and then added up. The composite scores and their constituent single scales were as follows:

1. Anxiety/depression adolescent rating (ANDEP-A): YSR (withdrawn; somatic complaints; anxious/depressed), DIKJ, SCL-MDD, SCL-APD (separation anxiety disorder, social and specific phobia, GAD), AFS (test and manifest anxiety), PHOKI (fear of school, social and separation anxiety) and LAVI (coping with academic failure).
2. Anxiety/depression parent rating (ANDEP-P): CBCL (withdrawn; somatic complaints; anxious/depressed), SCL-MDD and SCL-APD (separation anxiety disorder, specific and social phobia, GAD).
3. Disruptive behavior adolescent rating (DISRUP-A): YSR (attention problems, delinquent and aggressive behavior) and SCL-ADHD (inattention, hyperactivity, impulsivity).
4. Disruptive behavior parent rating (DISRUP-P): CBCL (attention problems, delinquent and aggressive behavior) and SCL-ADHD (inattention, hyperactivity, impulsivity).
5. Learning behavior adolescent rating (LEARN-A): LAVI (achievement motivation, learning strategies) and AFS (deficit achievement motivation).

For the pre assessment, the rating scales/questionnaires of all 147 subjects could be analyzed. For the follow-up assessment, however, 35.4% of the sample failed to return completed questionnaires despite considerable efforts by the study investigators to have the rating scales returned (i.e. several telephone calls with the adolescent and/or parent to remind them, the questionnaire were sent several times to the families). Nevertheless, we obtained information about school attendance at follow-up for all 147 patients. Subjects with and without follow-up data were compared using t-tests. No significant differences were found on central variables (duration, severity of school absenteeism at pre/post/ follow-up, age, gender, intelligence, mental health problems to pre). Therefore, missing data were imputed by regression analysis.

Means were compared using t-tests for dependent samples (two assessment points). For interval-scaled scores, the magnitude of changes was determined by computing effect sizes for dependent samples [6].

Results

School Attendance

The binomial tests showed that school absenteeism within the preceding two weeks of each assessment point was significantly reduced from pre (none of the 147 adolescents had continuous school attendance) to post (128 (87.1%) had continuous school attendance; $p < .001$), while it increased statistically significantly from post to follow-up (121 (82.3%) had continuous school attendance; $p < .001$). Overall, there was a highly significant decrease in school absenteeism from pre to follow-up ($p < .001$). Further analyses of the 26 school absenting adolescents at follow-up revealed that 11 of them had missed one to four days of school since the end of inpatient treatment, while 15 showed severe school absenteeism having missed 8 to 40 days of school since the end of inpatient treatment.

At the post assessment, 71 (48.3%) adolescents were visiting a regular school, while 68 (46.3%) still needed a special school setting (Figure 1). At post, eight adolescents (5.4%) had complete school dropout, and this figure had reached 9 by follow-up (6.1%). However, at follow-up, the percentage of youth attending the regular school system had increased to 62.6%.

Insert Figure 1 about here

Mental health problems

Table 2 summarizes the composite score results from the pre and follow-up assessments. Because the composite scores were z-standardized based on the pre assessment, all means at the pre assessment point were zero. From pre to follow-up, there was a highly significant decrease of mental health problems in adolescent and parent ratings on all composite scores, with effect sizes ranging from 0.44 to 1.15. We also collected the adolescent rating for anxiety/depression (ANDEP-A) and learning behavior (LEARN-A) at post. Analyses of variance showed statistically significant results on both these outcome variables (ANDEP-A: $F=71.19$; $p < .001$; LEARN-A: $F=36.46$; $p < .001$). Therefore, we computed additional t-tests, which showed a highly significant decrease from pre to post (ANDEP-A: $t=11.97$; $p < .001$; $ES=0.99$; LEARN-A: $t=8.47$; $p < .001$, $ES=.70$) with moderate to high effect sizes

that were either maintained at follow-up (ANDEP-A: $t=-0.28$; n.s.; $ES=.02$) or showed a further small decrease (LEARN-A: $t=-2.25$; $p<.05$; $ES=.19$).

Insert Table 2 about here

Discussion

In the present observational study we examined the effects of inpatient treatment (including cognitive-behavioral therapy) on school attendance and mental health problems in a large sample of severely impaired adolescents showing school absenteeism that was often chronic and who presented distinct phobic or other anxiety disorders or depressive episodes with or without additional conduct disorders. All 147 subjects showed school absenteeism and were strongly impaired with an average absence from school of nearly 20 weeks or more than 110 skipped classes on the last school report. All patients had a diagnosed phobic/other anxiety disorder or depressive episode, and 49 adolescents also had mixed disorders of conduct and emotions. Subjects with such comorbidity were excluded from previous studies examining the effectiveness of cognitive-behavioral therapy in adolescents with school absenteeism. Moreover, in the present study, 119 adolescents had had at least one previous and unsuccessful inpatient or outpatient treatment.

The rate of absence from school for the study sample was assessed at the beginning and end of inpatient treatment and after a 2-month follow-up as school attendance within the preceding two weeks. A wide variety of mental health problems were also assessed at pre and at 2-months follow-up. Our results are the first to show improvements in both school attendance and mental health problems after inpatient therapy that included cognitive-behavioral treatment and the availability of schooling in a special school in this target group of adolescents. At the end of the inpatient treatment, we found a considerable decrease in school absenteeism that remained broadly stable during follow-up – 82.3% of the sample regularly attended school or were employed during the two months after the end of inpatient treatment. However, we had to reject our hypothesis of the stability of school attendance during the follow-up period because we found a small, but statistically significant, increase of absenteeism during the follow-up period, which may be partly a consequence of the withdrawal of wide-ranging therapeutic assistance available in the inpatient setting.

Furthermore, there were sustainable reductions in emotional and behavioral disturbances from both the parent and adolescent perspective. We observed moderate to high reductions in symptoms of anxiety, depression, disruptive behavior and an improvement in learning behavior from the onset of inpatient treatment until the 2-month follow-up. We also examined symptoms of anxiety, depression and inefficient learning behavior at discharge from the perspective of the youngsters, and found that improvements occurred mainly during inpatient treatment and remained stable during follow-up. Taken together, these observational findings may support the suggestion that inpatient therapy (which includes cognitive-behavioral treatment) can result in a reduction of additional mental health problems that may be associated with the development of school absenteeism. However, further research is required to confirm this.

Although we cannot make direct comparisons between the results of the present observational inpatient study and those of three published studies that systematically assessed the efficacy of cognitive-behavioral therapy for children and adolescents with school absenteeism within an outpatient treatment setting [4, 22, 23], it is important to review their findings. In these previous studies, 60% to 100% of the sample continuously attended school at the end of outpatient treatment and emotional disturbances were considerably reduced. Unfortunately, however, the types of school attended at the beginning of treatment and the changes of school or school types during treatment were not reported. Furthermore, these studies excluded patients with disruptive behavior and the degree of impairment measured by absence from school was clearly lower than in our sample.

Results of our large observational study in adolescents with primary anxious/depressed school absenteeism (with or without disruptive behavior) are the first to show the benefits of inpatient therapy (including intensive cognitive-behavioral therapy) together with other interventions, such as attendance at a special type of school during the same period for many patients. Our results, therefore, provide additional information to the outpatient efficacy studies and may give some new insight into the effective treatment of adolescents with primary anxious/depressed school absenteeism. They also suggest that it may be important to consider parent-focused interventions within a multimodal treatment program because, as shown in Table 1, nearly 90% of the parents underwent intensive parenting skill training to strengthen their parenting behavior, and more than 50% of the sample received youth welfare support. It is likely that this type of intervention contributed to the outcome and stability of the results.

It should be noted that nearly 60% of the sample also received outpatient treatment during the follow-up period that was not part of the inpatient therapy program. This presumably had an impact on the stability of treatment effects at follow-up and indicates the importance of subsequent outpatient treatment in assuring the stability of treatment effects. Further analyses comparing subjects with and without subsequent outpatient treatment are needed to show the specific contribution of additional outpatient treatment in this population.

Our results show that a supportive school setting in a special school (clinic school or special school for children with emotional and behavioral disturbances) was needed by nearly half of the sample at the end of inpatient treatment and by about one third of the sample at follow-up, with most of these youths remaining in our clinic school. It is likely that this secure school setting had an impact on the observed effects. However, we cannot differentiate between the effects of the school setting, the inpatient treatment in general and the specific effect of cognitive behavioral therapy on the observed outcomes. As long-lasting school absenteeism increases the probability of adverse consequences, such as delinquent behavior, school dropout, and a broad variety of economic, psychiatric, social and partnership problems in adulthood, more places in special schools targeting youth with chronic school absenteeism should be made available.

The major limitation of the present observational study is the lack of an experimental control condition so that the observed changes cannot be attributed to the inpatient cognitive-behavioral treatment. Therefore, these results cannot be interpreted as causal. However, given the chronicity and impairment of the examined population, spontaneous remission is fairly unlikely. Because the design of the present study does not allow the observed changes to be definitively ascribed to the cognitive-behavioral treatment itself, we could say that any kind of inpatient treatment could result in comparable effects. Future investigations will have to analyze inpatient cognitive-behavioral therapy using a control group who receive an alternative inpatient treatment to determine whether or not the treatment effects are due to the cognitive-behavioral treatment. Nevertheless, the treatment interventions used (i.e. exposure, cognitive restructuring, and reinforcement) have, in general, been shown to be effective in highly controlled experimental studies in children with a wide variety of phobic or other anxiety disorders. The fact that 11 adolescents received and were discharged with additional psychopharmacological medication must also be taken into account when interpreting the results. Future research on mediators will show whether such additional medication has an effect on the

outcomes of school absentees. The present analysis included only patients who remained in the inpatient setting until the end of treatment. It did not include the 16 patients who dropped out of the study on the first day of inpatient treatment. With an intention-to-treat approach, these 9.8% subjects should be considered as failures. However, taking this into account, we still have 78.5% subjects continuously attending any type of school to post and 74.2% to follow-up.

An additional weakness of the study is that the follow-up period was quite short. A long-term follow-up is needed to confirm the stability of treatment effects. Furthermore, we had to rely on parent ratings of school attendance at follow-up. However, we consider this information was accurate because of the close collaboration established during inpatient treatment between parents, schools and the forthcoming outpatient therapist. Because we focused on school absenteeism in this study (i.e. no regular school attendance during the two weeks before each assessment), youngsters showing isolated days of irregular school attendance before these two weeks but regular school attendance during the two weeks prior to the assessment point were classified as attending school regularly. We had to assess school attendance during time periods of equal length for each of the assessment points in the study and, in our experience, school attendance over the last 2 weeks often is representative of school attendance over a longer time period.

Conclusion

To our knowledge, this is the largest study examining the effects of inpatient therapy (including cognitive-behavioral treatment) for adolescents with school absenteeism. Previous studies focused on outpatient treatment of children and adolescents with phobic or other anxiety disorders alone, excluding disruptive behavior and treating subjects with a relatively low level of school absence. Our observational study in adolescents with a high level of school absenteeism and a mixture of emotional and disruptive symptoms is the first to show the benefits of inpatient therapy that included cognitive-behavioral therapy and access to a special school with expertise on teaching children and adolescents with psychiatric disorders. According to Egger and colleagues [13], these types of subjects represent the largest number with school absenteeism and show the greatest impairment. Inpatient treatment as provided in the present study is cost-intensive and time-consuming. Therefore, a specific indication is important and inpatient treatment should only be considered if other treatment approaches (i.e. outpatient treatment) do not show the desired effects. The use of focused, intensive and temporary

inpatient treatment may establish a continuous school attendance and restore the possibility of an outpatient treatment.

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Table 1. Implemented interventions and percentage of use

Intervention	% of the sample (n=147)
Development of health belief model with adolescent	97.1
Development of health belief model with parents	97.1
Cognitive restructuring with adolescent	92.0
Exposure in school with therapist	49.3
Other exposure with therapist	46.9
Token economics in inpatient unit	33.3
Token economics in school	10.8
Token economics at home (week-ends)	24.5
Homework training	82.0
Social skills training	53.7
Integration in free time activities (i.e. boy scouts)	38.3
Resumption of social contacts with peers	50.8
Parenting skill training	89.1
Counselling of social worker	46.0
Procuration of youth welfare office	54.7
Procuration of outpatient treatment	90.6

Table 2. Means (z-scores), standard deviations and effect sizes (Cohens d) of the composite scores for mental health problems at all assessment points (n=147)

Scale *	Pre		Follow-up		t-tests		
	M	SD	M	SD	T	p	ES
ANDEP-A+	0.00	0.69	-0.45	0.52	9.44	< .001	0.78
ANDEP-P	0.00	0.63	-0.64	0.57	13.89	< .001	1.15
DISRUP-A	0.00	0.71	-0.33	0.52	6.47	< .001	0.53
DISRUP-P	0.00	0.78	-0.46	0.53	9.44	< .001	0.78
LEARN-A	0.00	0.77	-0.32	0.70	5.39	<.001	0.44

*ANDEP-A: composite score anxiety/depression adolescent rating; ANDEP-P: composite score anxiety/depression parent rating; DISRUP-A: composite score disruptive behavior adolescent rating; DISRUP-P: composite score disruptive behavior adolescent rating; LEARN-A: composite score learning behavior adolescent rating

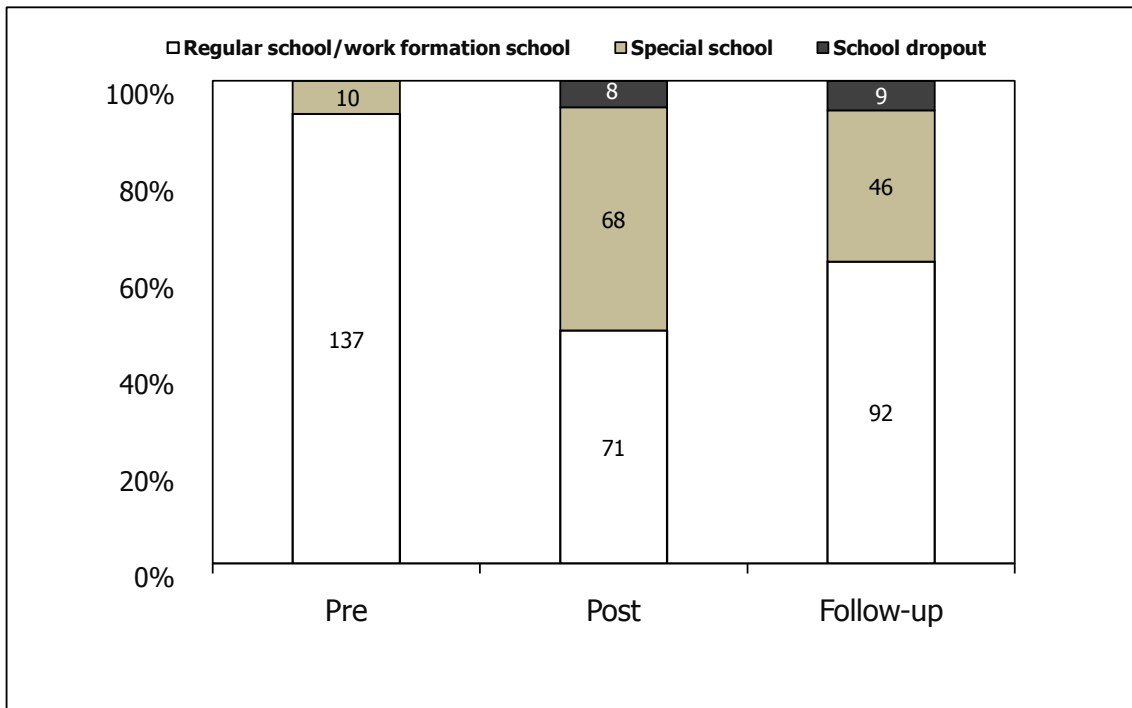


Fig. 1. Number (%) of adolescents in each grouped school type at pre, post and follow-up (n = 147)