Age of onset of disruptive behavior of residentially treated adolescents

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Chapter 5

Treatment adherence in adolescent psychiatric inpatients with severe disruptive behaviour

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Clinical Psychologist, 2018, 22, 55-62.
(DOI) 10.1111/cp.12111

Abstract

Objective: To examine pre-treatment characteristics associated with dropout in 224 adolescent psychiatric inpatients (mean age 17.1 years) with severe disruptive behaviour. To date, little is known about the factors predicting dropout among adolescents treated for severe disruptive behaviour. This is surprising, as dropout is a major problem in this specific group. **Method:** Dropouts (n=77) and completers (n=147) were compared on known risk factors for dropout, such as severity of externalising problems and disorders, ethnic minority status, male gender, and lower academic functioning, as well as on other factors considered relevant: behavioural characteristics, including age of onset and different types of disruptive behaviour. Within dropout, withdrawal (termination against the advice of the therapist; n=40) and pushout (termination against the wish of the client; n=37) were distinguished. **Results:** Two characteristics significantly predicted dropout: early-onset of disruptive behaviour and cannabis usage prior to treatment. Within the dropout group no differences were found between withdrawals and pushouts. **Conclusions:** Predicting dropout among adolescent psychiatric inpatients with severe disruptive behaviour is difficult. The two predictors found were already present at the time of admission and are therefore considered unalterable. However, they can be used to pinpoint individuals with higher chance at dropout, who in turn can be offered tailored interventions aimed at improving the therapeutic relationship.

Key words: Adolescent psychiatry, Antisocial behaviour, Dropout, Pushout

Key Points

Dropout is a major problem in treatment of adolescents with severe disruptive behaviour; however, little is known about the factors predicting dropout in this specific group.

Early-onset (before the age of 12) of disruptive behaviour and cannabis usage prior to treatment predict dropout in residential treatment of adolescents with severe disruptive behaviour.

For the clinician, there is a difference between withdrawal and pushout, but in the present research no differences were found between these subgroups of dropout.

Introduction

Adolescent psychiatric inpatients with severe disruptive behaviour are likely to drop out (i.e., premature termination of treatment). Although dropout is known to be high within this group, research on this subject is scarce. Existing research predominantly concerns treatment on substance abuse, with few focusing on predictors of dropout (Orlando, Chan, & Morral, 2003; Schroder, Sellman, Frampton, & Deering, 2009). Just one article that described characteristics of adolescents with behavioural problems predicting completion of residential treatment was found (Van den Reijen et al., 2013), in which no differences between completers and dropouts were found. In a meta-analysis (De Haan et al., 2013) on dropout in non-residential outpatient settings, several pre-treatment client characteristics have been associated with dropout. Many of these characteristics are dominant in patients with disruptive behaviour, that is, the presence of an externalising disorder, intensity of self-reported externalising and total problems, ethnic minority status, gender (male), lower academic functioning, higher number of diagnoses, referral source, and lower social functioning (De Haan et al., 2013). As behavioural problems substantially contribute to dropout, high dropout rates are expected in adolescents with severe disruptive behaviour treated in residential settings. Up to this date, however, little is known about dropout and characteristics predicting dropout within this group.

In youths treated for disruptive behaviour, factors predicting dropout are unclear. Therefore, it is of interest to detect specific differentiating factors. Such knowledge is relevant for clinicians working with these youths, as it may help them to tailor interventions to their needs. Evidently, specific types of disruptive behaviour are likely to play a role. For example, the age of onset should be taken into account, as this aspect assumingly determines treatment accomplishment. Based on age of onset, Moffitt (Moffitt, 1993) developed one of the most influential theories concerning disruptive behaviour. Disruptive behaviour starting early and persisting into adulthood was called life-course-persistent disruptive behaviour (LCP), while disruptive behaviour only occurring during adolescence was labelled as adolescence-limited (AL). During adolescence, however, the LCP and AL group present similar in frequency and seriousness of offending, making both groups hard to distinguish based on their behaviour (Moffitt, 1993). Nevertheless, the underlying mechanisms leading to the

behaviour differ and it is argued that the LCP behaviour is more tenacious (Moffitt, 1993, 2003; Moffitt et al., 2008; Moffitt et al., 2002). Therefore, one could argue that attrition rates may be different for both groups. This was already implied by Moffitt et al. (2008), as she stated that "Clinical trials are needed to identify whether potential CD (Conduct Disorder) diagnostic criteria can predict treatment compliance or treatment response (p.31)".

Dropout

Particularly in youths with disruptive behaviour, early termination of residential treatment may not only be initiated by the client but also by the therapist (Van den Reijen et al., 2013). A client may for instance be pushed out by the therapist because of incidents, or lack of commitment which in turn may lead to transferal to another, more restrictive facility (e.g., prison). In most studies, dropout is simply defined as premature termination of treatment (De Haan et al., 2013), without differentiation. However, significant differences may be expected between youths who drop out on their own initiative (i.e., withdrawal), compared to those dropping out on their therapists initiative (i.e., pushout) (Boon & Colijn, 2001). For this reason, in the present study, a distinction was made within the dropout group between withdrawal and pushout.

The aim of the present study was to examine treatment adherence in a sample of adolescent psychiatric inpatients with severe disruptive behaviour. It was expected that a substantial part of the sample would drop out of treatment, and can be characterized by pre-treatment characteristics previously associated with dropout (De Haan et al., 2013). Because disruptive behaviour comprises all kinds of behaviour (e.g., oppositional defiant behaviour, delinquent behaviour, and aggressive or violent behaviour), besides early-onset disruptive behaviour, we also looked into the specific types of disruptive behaviour and their relation to dropout. Also, a distinction was made between withdrawal and pushout, because of the assumed differences between these concepts.

Methods

Setting

The present study was conducted at a residential orthopsychiatric and forensic psychiatric youth facility that offers specialized care for youth with severe disruptive behaviour (i.e., aggressive, oppositional defiant, delinquent, and/or rule breaking behaviour), and co-morbid psychiatric disorders. Participants were referred by other specialized youth care institutions, i.e., institutions that predominantly focus on developmental, psychiatric or criminal problems in children and adolescents. In order to be eligible for treatment, the youngsters had to meet the following criteria: age between 16 and 20 years, severe disruptive behaviour combined with psychiatric problems, and (a history of) previous treatment. Exclusion criteria for treatment were functioning below borderline intellectual level (IQ <70), addiction problems that need primarily substance abuse-related treatment, or severe recidivist criminal conduct for which specialized forensic treatment was indicated.

The treatment program of the facility was based on a cognitive-behavioural treatment model with emphasis on enhancement of social competence (Bartels, 2001), extended with elements of the schema-based therapy (Young, 1990; Young et al., 2004) and consisted of a variety of therapies and training activities, for example, cognitive behavioural therapy, psycho-motor therapy, art therapy, drama therapy, family therapy, social skills training, aggression regulation training, pharmacological treatment, job training, and education.

Procedure

The research had been presented to the internal medical ethics committee. Because it was qualified as non-invasive survey research using instruments that are part of the overall clinical assessment, the committee decided that official submission was not designated. Written informed consent was obtained according to legislation and the institution's policy, after a personal description of the study to the subjects. All inpatients agreed to participate and in concordance with the institutional policy, they participated without receiving incentives or rewards. According to the research protocol (Bruinsma & Boon, 2001) the measurements were conducted within the first weeks of admission. Discharge status was determined shortly after discharge.

To describe the sample, participants were interviewed by research assistants to gather bio-demographical information. These research assistants were psychology students in the final year of their master program, who were trained and supervised by the researcher.

Participants

All 226 inpatients admitted during a 14-year period (1995-2009) were approached to participate. Two had committed suicide during treatment and were therefore excluded. The sample was comprised of 52 female and 172 male participants with a mean age of 17.7 years. Although the level of intelligence (mostly measured at the institutions that requested the admission) of the sample was approximately average, the educational attainment was relatively low. In addition to their psychiatric problems, all participants displayed severe disruptive behaviour.

Measures

Data for the study were collected with different instruments. Some of the data originated from a client interview, some of the data were collected through file review and some by self-report instruments. In order to capture the relevant behaviour characteristics as comprehensive as possible, some information (e.g., criminal offending, substance use) were obtained from interview as well as file review. This information was gathered on standardized forms used in the context of ongoing program evaluation conducted at the facility. Drug usage was queried by type and age at onset. Criminal offending was queried by type, frequency and age at onset.

Interview

Participants were interviewed on socio-demographic information (e.g., sex, age, ethnicity), academic functioning, substance usage, and criminal offending by research assistants. During the intake procedure, the participant, his parents and the referring professional (e.g., guardian or probation officer) were also interviewed by the therapist involved, in order to obtain elaborate information about relevant characteristics as complete as possible (e.g., substance use, criminal offending).

File review

To determine the psychiatric classification at admission, information on current Diagnostic and Statistical Manual of Mental Disorders (DSM) diagnoses were collected from file. These DSM classifications were made by the attending psychiatrist within the first 2 months of treatment and were based on direct evaluations of the subjects. The research assistants also screened the files on referral (i.e., referral by youth care, youth mental health care, or judicial institutions), age at admission, criminal offences (type, frequency, and age at onset), substance usage (type and age at onset), and duration of treatment.

Self-report instrument

Participants filled in the youth self report (YSR; Achenbach & Rescorla, 2001; Verhulst et al., 1997) in the first week of admission. The YSR includes 108 items covering a broad range of emotional and behavioural problems, each rated on a scale of 0–2. The YSR yields scores on eight syndrome scales, two broadband scales (internalising and externalising problems), and a total scale. The internalising scale reflects inward directed problems (i.e., anxiety, depression, withdrawn behaviour, and somatic complaints), the externalising scale reflects outward directed problems (i.e., rule breaking and aggressive behaviour). Summing scores of problem items results in a total problem score. Only the main scale "externalising problems" and the total problem scale were reported in this study. To indicate social functioning, the syndrome scale "social problems" of the YSR was also used. The Dutch version of the YSR has good validity and reliability (Ferdinand, Verhulst, & Wiznitzer, 1995).

Encoding of the data

Ethnicity was determined by the native country of the participants and their (biological) parents. If the country of birth of both parents was The Netherlands (independently of the country of birth of the child) the child was seen as Dutch. If one of the parents was born abroad, the child was seen as non-native Dutch. A division was made between native Dutch and non-natives.

Academic functioning was determined based on the highest level of education attended prior to the admission (i.e., not attending school, special education, pre-

vocational or junior general secondary education, senior general secondary, or pre-university education).

Disruptive behaviour

Presence of (types of) disruptive behaviour was determined, based on the age when treatment was sought for disruptive behaviour or special education was indicated due to this behaviour, and the age at which the youngster started to commit criminal offences. The disruptive behaviour of the adolescent inpatients that were examined was categorized according to the framework of Frick et al. (1993), and included aggression (i.e., homicide attempt, assault, robbery, physical abuse, sexual offences, threatening someone), oppositional behaviour (i.e., disobedient, doing things their own way, stubbornness), status offences (i.e., running away, truancy, substance usage), and property violations (i.e., selling drugs, lying, possession of weapons, stealing, setting fires, vandalism, fencing stolen goods, traffic offences) (De Boer et al., 2013; De Boer et al., 2012; Frick et al., 1993). The categories of disruptive behaviour were used to compare the subgroups. Also, for each participant the presence and age of onset of disruptive behaviour was determined. Disruptive behaviour was considered present when it was mentioned by at least one of the sources (i.e., file, therapist, or participant), and absent when not present according to all sources. When no information was available, it was coded as unclear (or missing, depending on the reason for unavailability). The earliest age reported by any source was used as the age of onset. Because the course of the adolescent inpatients' future disruptive behaviour was as yet unknown, the terms early-onset (EO) and adolescent-onset (AO) were used instead of LCP or AL. Participants with disruptive behaviour starting prior to age 12 were considered belonging to the EO group and those whose disruptive behaviour started from age 12 on were labelled AO (De Boer et al., 2013). This was in accordance with Moffitt (1993; Moffitt et al., 1996), and also with Dean (Dean et al., 1996), who found that differences between the EO and AO groups were only evident when the threshold was set to age 12. The distinction in the EO and AO groups was performed by the main researchers. For 195 of the 224 participants the age of onset of disruptive behaviour could be determined (87.1% of the sample), resulting in 139 early-onset (71.3%) and 56 adolescent-onset youths (28.7%). The inter-rater reliability (Cohen's

Kappa: .79) has been determined between ratings independently done by two researchers on a random subset of the sample (n=11), based on the available multi-informant (adolescent, parent, and therapist), and multi-method (self-report, interview) information.

Dropout

Dropout was determined in line with the preferred definition of dropout of De Haan et al. (2013), based on how treatment was terminated according to the therapist involved. This resulted in three groups: those who terminated treatment in accordance with the therapist (i.e., completers), those who terminated treatment against the advice of the therapist (i.e., withdrawals), and those who were expelled (i.e., pushouts). The withdrawal group and the pushout group combined were labelled as the dropout group, which thus can be defined as all patients who prematurely terminated treatment.

Statistical analysis

All analyses were performed using the Statistical Package for the Social Sciences, version 20.0 (IBM, 2011). The variables of interest that had been associated with dropout in previous studies and the behavioural factors that were considered relevant were tested two-sided for differences, with a level of significance of $p<.05$. A Holm-Bonferroni correction was used to account for the number of characteristics tested.

First, with chi-square tests (categorical variables) and *t*-tests (continuous variables), the completer group was compared to the dropout group. Subsequently, a binary logistic regression analysis was performed (dependent completer and dropout), and all characteristics were included as independent variables.

The Nagelkerke R-square of the model was used as measure for effect size. To examine assumed differences between withdrawals and pushouts, with chi-square tests (categorical variables) and *t*-tests (continuous variables), the withdrawal and pushout groups were compared.

Results

Table 1 shows the pre-treatment client characteristics previously found to associate with dropout. Almost one third of the participants ended treatment prematurely (34.4%). The dropouts were significantly more often male than the completers. With regard to the pre-treatment characteristics on the types and onset of the disruptive behaviour (see Table 2), cannabis usage prior to admission was more common within the dropout group (77.9%) compared to the completer group (57.8%).

Table 1

Pre-treatment client characteristics by discharge status

		Total (n=224)	Dropout (n=77)	Completer (n=147)	Completer vs dropout
	N[1]	n (%) / *M* (SD)	n (%) / *M* (SD)	n (%) / *M* (SD)	*p-value*
Sex (male)	224	172 (76.8%)	65 (84.4%)	107 (72.8%)	*.05**
Age at admission (years)	224	*17.7* (1.2)	*17.6* (1.3)	*17.7* (1.2)	*.603*
Minority status (ethnicity non-Dutch)	224	59 (26.3%)	25 (32.5%)	34 (23.1%)	*.132*
Intellectual ability (IQ)	163	*98.5* (13.2)	*98.5* (11.5)	*98.6* (14.1)	*.973*
Academic functioning	219				*.537*
Not attending school		34 (15.5%)	14 (8.7%)	20 (13.9%)	
Special education		20 (9.1%)	7 (9.3%)	13 (9.0%)	
Pre-vocational/junior general secondary		139 (63.5%)	48 (64.0%)	91 (63.2%)	
Senior general secondary/pre-university		26 (11.9%)	6 (8.0%)	20 (13.9%)	
Referral	224				*.099*
Youth welfare institution		96 (42.9%)	40 (51.9%)	56 (38.1%)	*.088*
Youth mental healthcare institution		90 (40.2%)	24 (31.2%)	66 (44.9%)	*.058*
Judicial institution		38 (17.0%)	13 (16.9%)	25 (17.0%)	*.826*
Number of diagnoses	221	*2.7* (1.2)	*2.8* (1.2)	*2.6* (1.2)	*.210*
Diagnosed with externalising disorder	221	149 (67.4%)	54 (71.1%)	95 (65.5%)	*.404*
YSR total score (T-score)	214	*56.0* (12.2)	*55.0* (11.9)	*56.6* (12.1)	*.338*
YSR externalising score (T-score)	214	*57.5* (11.0)	*57.0* (11.1)	*57.3* (10.9)	*.671*
YSR social problem score (T-score)	214	*57.1* (8.6)	*55.6* (8.0)	*57.9* (8.8)	*.062*

[1] Number of patients for whom information about the characteristic was available

* $p \leq .05$ (two-tailed)

Further, the dropout group significantly more often displayed disruptive behaviour prior to age 12 and more often showed disruptive behaviour at school. These three characteristics significantly predicted membership of the dropout group

(see Table 3), with odds ratios ranging from 2.28 to 3.02, corresponding with effect sizes ranging of .02 to .07. The dropouts and completers differed neither on types nor in the number of types of disruptive behaviour.

Table 2

Pre-treatment disruptive behaviour characteristics by discharge status

		Total (n=224)	Dropout (n=77)	Completer (n=147)	Completer vs dropout
	N[1]	n (%) / *M* (SD)	n (%) / *M* (SD)	n (%) / *M* (SD)	*p-value*
Cannabis usage (prior to treatment)	224	145 (64.7%)	60 (77.9%)	85 (57.8%)	*.003***
Disruptive behaviour reported at school	197	154 (78.2%)	58 (86.6%)	96 (73.8%)	*.041**
Disruptive behaviour (framework Frick)					
Aggressive behaviour	224	189 (84.4%)	69 (89.6%)	120 (81.6%)	*.118*
Oppositional behaviour	206	98 (47.6%)	40 (55.6%)	58 (43.3%)	*.093*
Status offences	213	196 (92.0%)	69 (94.5%)	127 (90.7%)	*.331*
Property violations	211	187 (88.6%)	67 (89.3%)	120 (88.2%)	*.810*
Number of disruptive behaviours	186	*3.1* (0.9)	*3.3* (0.8)	*3.0* (0.9)	*.058*
Early-onset (< age 12) disruptive behaviour	195	139 (71.3%)	59 (84.3%)	80 (64.0%)	*.003***

[1] Number of patients for whom information about the characteristic was available

* $p \leq .05$ (two-tailed)

** $p < .01$ (two-tailed, Holm-Bonferroni correction)

Table 3

Logistic regression analysis of the associations between client characteristics and completion and dropout

		Model 1			Model 2	
	N	OR	95% CI	R^2	OR	95% CI
Early-onset (< age 12) of disruptive behaviour	195	3.02	(1.44-6.32)*	.07	2.93	(1.39-6.18)*
Cannabis usage (prior to treatment)	224	2.57	(1.37-4.84)*	.06	2.14	(1.10-4.16)*
Disruptive behaviour reported at school	197	2.28	(1.02-5.10)*	.03		

Model 1: univariate; model 2: multivariate. Multivariate model: n=195; OR = odds ratio; 95% CI = 95% confidence interval; R^2 = Nagelkerke R^2

* $p < .05$; Nagelkerke R^2 model 2: 0.10

Binary logistic regression (dropout and completion)

The logistic regression analysis was performed to test the predictive value of the variables on (the dichotomous dependent variable) dropout. The multivariate model showed two significant independent predictors of dropout: early-onset of disruptive behaviour and cannabis usage prior to treatment (Table 3; χ^2 (2, N=195) =

14.87, *p*=.001). The model as a whole explained 10.1% (Nagelkerke *R*-square) of the variance, and correctly identified 64.1% of cases.

Withdrawal versus pushout

About half of 77 participants of the dropout group were expelled from treatment (n=37; 16.5% of the total sample) because of incidents or complete lack of commitment. Many of them were transferred to a more restrictive residential facility (judicial institution or adult mental healthcare institution: 37.8%) and a quarter of the pushouts (24.3%) ended up in a crisis centre, wandered around or had a unknown residence. The other half of the dropouts (n=40; 17.8% of the total sample) withdrew from treatment. They ran away, did not return from leave or decided unilaterally and against the advice of the therapist to terminate the treatment. The dropout groups were compared on all pre-treatment client and disruptive behaviour characteristics listed in Tables 2 and 3. None of the pre-treatment client and disruptive behaviour characteristics differed, except the YSR Externalising score, which was higher for the pushouts (*M*=60.2, SD=9.9 versus *M*=55.9, SD=11.8, *p*=.05).

Discussion

Although not all clients benefit from psychiatric treatment or interventions aimed at reducing behavioural problems, treatment increases the likelihood that psychiatric and behavioural problems get resolved (e.g., Kazdin et al., 1994; M. Shaw et al., 2012). Hence, when clients drop out, their disorders might persist or even worsen later in life, because children with untreated behavioural problems are more likely to leave school without a qualification, tend to engage in delinquent activities more often, have high incidence of drug and alcohol abuse, and are likely to become unemployed as adults (De Haan et al., 2013; Moffitt et al., 2002). Therefore, preventing dropout and its negative consequences carries clinical relevance, with advantages for both the individual and the society as a whole. Especially among samples with a high incidence of disruptive behaviour, the stakes are high, because if left untreated, these individuals tend to cause substantial social turmoil.

In the meta-analysis on dropout among non-residential child and adolescent outpatients of De Haan et al. (2013), dropout percentages of 28-75% were shown.

Also, in a comparable residential sample of psychiatric inpatients with severe disruptive behaviour of Van der Reijen et al. (2013), a dropout percentage of 59.1% was found (14.2% withdrawal and 44.9% pushout). In this light, the dropout percentage of 34.4% (17.9% withdrawal and 16.5% pushout) in our study was on the low end. The low percentage of pushout was probably partly due to what the facility describes as "retentive treatment" (Boon & Haijer, 2008) which, among other things, reflects the way the facility regards the youngsters and their disruptive behaviour. Employees of the institution are well aware not to walk into the common pitfall to send the youngsters away when they exhibit the behaviour for which they were initially admitted.

Among the sample, there was a high prevalence of risk factors for dropout known from outpatient settings, that is, the majority was male, two third had an externalising disorder, and about a quarter was not attending school or attended special education. With this in mind, one would actually expect a high percentage of dropout. In order to find predictors of dropout within this high risk group, it was of clinical relevance to investigate specific predictors for dropout, which would apply to psychiatric inpatients with disruptive behaviour. It was found that the dropouts differed significantly from the completers on only one of the known pre-treatment patient characteristics (i.e., sex) and on three of the behavioural characteristics, namely cannabis usage prior to admission, disruptive behaviour reported at school, and EO disruptive behaviour. Of all characteristics, after multivariate regression analysis only EO disruptive behaviour and cannabis usage prior to admission remained as predictors of dropout. The explained variance of 10% indicates that many other factors play a role. This, of course, raises the question to what the extent the findings can be used to predict behaviour of individual youths.

We found no differences between pushouts and withdrawals, or at least, not in the pre-treatment client characteristics or predictors that were examined. However, both groups may differ in factors that are characteristic but were not examined, such as parent or family factors (e.g., SES, parenting), therapist factors (e.g., the quality of the therapeutic alliance), and also motivation for treatment, having a purpose in life, or distrust of adults. We therefore think it is useful to distinguish between the two

ways of ending treatment. After all, to prevent dropout, it may be advisable to approach potential withdrawals and potential pushouts differently.

While cannabis usage prior to treatment turned out to be a predictor of dropout, usage by itself was not a contra-indication for treatment, unless there were severe addiction problems that needed primarily substance abuse related treatment. In the Netherlands, cannabis usage is not a criminal offence and is fairly common among adolescents. Research showed that 27% of all 16 year olds and 29% of all 17 year olds have used cannabis occasionally. These percentages are higher for 17 year old adolescents admitted in judicial institutions, as about 70% of them was reported to use cannabis (Van Laar et al., 2014). In our sample, about two thirds used cannabis prior to treatment, which is just a little lower than in adolescents admitted to judicial institutions. Among the participants who dropped out, this percentage was higher (77.9%) compared to those who completed treatment (57.8%). During treatment, extra attention should thus be given to the group that is familiar with cannabis usage, in order to reduce the risk of dropout.

Limitations

While studies in naturalistic settings carry substantial clinical relevance because of their ecological validity, methodological limitations hamper interpretation of findings. It affects the representativeness and replicability of the study and it makes it virtually impossible to draw causal inferences. The main limitation of this study relates to the assessment of variables. Data were derived from files, and collected by several clinicians. Also, we do not know to what extent the inclusion of youths in the clinic has influenced our results.