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de Haan, A.M.; Boon, A.E.; Vermeiren, R.R.J.M.; Hoeve, M.; de Jong, J.T.V.M.

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# Ethnic Background, Socioeconomic Status, and Problem Severity as Dropout Risk Factors in Psychotherapy with Youth

Anna M. de Haan · Albert E. Boon · Robert R. J. M. Vermeiren · Machteld Hoeve · Joop T. V. M. de Jong

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## Abstract

**Background** Dropout from child and adolescent psychotherapy is a common phenomenon which can have negative consequences for the individual later in life. It is therefore important to gain insight on dropout risk factors.

**Objective** Several potential risk factors [ethnic minority status, a lower socioeconomic status (SES), and higher problem severity] were analyzed in present study. Innovations are that these risk factors were examined for children and adolescents separately, and a distinction was made in termination status between referred patients, dropouts and completers.

**Methods** For ethnic majority and minority outpatient children (age 5–11,  $n = 399$ ) and adolescents (age 12–20,  $n = 352$ ) problem severity, ethnic background, SES, and treatment termination status (completer, dropout, referral) were specified. Multinomial logistic regression models were used as main method of analysis.

**Results** For children, a Moroccan/Turkish ethnicity and higher externalizing scores were risk factors for being referred. For adolescents, a Surinamese/Antillean ethnicity, being female, being older, and lower parental SES occupation levels were risk factors for dropout.

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A. M. de Haan · A. E. Boon  
Scientific Research Department, Stichting De Jutters, Youth Mental Health Care Center,  
The Hague, The Netherlands

A. M. de Haan (✉) · A. E. Boon · R. R. J. M. Vermeiren  
Department of Child and Adolescent Psychiatry, Curium-Leiden University Medical Center,  
Endegeesterstraatweg 27, 2342 AK Oegstgeest, The Netherlands  
e-mail: a.m.de\_haan@curium.nl

A. E. Boon  
Scientific Research Department, De Fjord Lucertis, Center for Orthopsychiatry and Forensic Youth  
Psychiatry, Capelle aan den IJssel, The Netherlands

R. R. J. M. Vermeiren  
Department of Child and Adolescent Psychiatry, VU University Medical Center, Amsterdam,  
The Netherlands

**Conclusions** Different dropout risk profiles emerged for children versus adolescents, and for dropouts versus referrals. Also, it depended on the specific ethnic background whether ethnic minority status was a predictor for dropout, and the relationship between SES and termination status differed by whether parental SES occupation or parental SES education were used as SES indicator. Professionals should thus be aware of these potential risk factors for dropout or referral when treating children and adolescents.

**Keywords** Therapy dropout · Ethnicity · Socioeconomic status · Problem severity · Youth psychotherapy

## Introduction

With rates of 16 % up to 75 %, premature termination or dropout from child and adolescent psychotherapy is a common phenomenon (Baruch et al. 2009; De Haan et al. 2013; Midgley and Navridi 2006). Not treating behavioral and emotional problems during childhood can have negative consequences later in life (Boggs et al. 2004; Harland et al. 2002). For instance, compared to children who do receive treatment, children with untreated behavioral problems (premature terminators or those who do not receive treatment at all) are more likely to not complete school, engage in delinquent activities, abuse drugs and alcohol, and become unemployed (Lochman and Salekin 2003; Moffitt et al. 2002). In addition, untreated, early-onset anxiety disorders often continue into adulthood (Dadds et al. 1999), and academic underachievement and substance dependence are likely to follow (Woodward and Fergusson 2001). In order to prevent these negative consequences of treatment dropout, it is important to gain knowledge of its determinants (i.e., dropout predictors) within youth mental health care.

Although dropout predictors in youth mental health care are heterogeneous, they can be divided in three major groups: child factors (e.g., ethnic background, problem severity, age, gender), family factors (e.g., socioeconomic status (SES), family composition, living situation), and therapy or therapist factors (e.g., therapeutic relationship, perceived relevance of treatment, waiting time) (De Haan et al. 2013). Present study will focus on child and family factors. Studying child and family factors leads to the identification of patients being at risk for dropout. Extra attention to these patients may prevent them from dropping out. In contrast to the rather stable child and family factors, therapy factors are dynamic

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M. Hoeve  
Research Institute Child Development and Education, University of Amsterdam, Amsterdam,  
The Netherlands

J. T. V. M. de Jong  
Amsterdam Institute of Social Science Research, University of Amsterdam, Amsterdam,  
The Netherlands

J. T. V. M. de Jong  
Department of Psychiatry, Boston University School of Medicine, Boston, MA, USA

J. T. V. M. de Jong  
Department of Psychology, Rhodes University, Grahamstown, South Africa

and can be changed by the professional or the institution. For instance, a therapist may influence the therapeutic relationship during treatment. When the goal is to prevent dropout all three groups of predictors need different interventions (Kazdin et al. 1997).

With respect to the child factors, ethnic minority status and higher problem severity appear to be significant risk factors for dropout, while the results for age and gender are very contradictory (De Haan et al. 2013; Miller et al. 2008; Schoenwald et al. 2005; Warnick et al. 2012). A recent meta-analysis has shown that it depends on the specific ethnic background whether ethnic minority status is a risk factor for dropout however (De Haan et al. 2013). This meta-analysis also showed that higher externalizing problem severity, and not higher internalizing problem severity is a risk factor for dropout. In one study conducted in the United States, it was already shown that there is an interaction between ethnicity and externalizing problem severity in predicting therapy dropout with adolescents (Ryan, et al. 2013).

With respect to family factors, a lower SES is an important risk factor for dropout, although results of former studies are contradictory (De Haan, et al. 2013). An important reason for the results being contradictory is that the definition of SES differs across studies and is usually measured by determining education, income, or occupation, or a composite of these three dimensions (Chen et al. 2006). The relationship between SES and variables such as (mental) health or therapy outcome differs according to the definition that is used (Kaufman et al. 1997; Winkleby et al. 1992). Certain SES indicators were shown to be poorer markers of the actual SES among some minority groups than among majorities, because for instance in the United States minority group members on average do not receive the same financial gains for equivalent years of education as Caucasians do (Williams 2002). In contrast to the situation in the United States (where most of the previous dropout studies were conducted), in the Netherlands utilization of health care services is largely independent of financial constraints, because all children are covered by public or private health insurance (Zwaanswijk 2005).

It is of interest to analyze how the three significant child and family dropout risk factors (i.e., ethnic background, SES, and problem severity) relate to each other, and how they independently contribute to the risk profile of potential dropouts. For instance, ethnic minority status and SES are interrelated and correlated variables (i.e., ethnic minorities often have a lower SES than ethnic majorities), and it is therefore difficult to discern which of the two variables is the main predictor for dropout (CBS 2012; Chen et al. 2006). Taken together, it is possible that ethnic minority background, higher (externalizing) problem severity, and lower SES may negatively impact therapy adherence, thus reducing the likelihood that patients will stay in treatment and benefit from it. Because of the reasons described earlier, it is interesting to study the relationship between ethnic minority background, SES, problem severity, and dropout in a different context than the United States.

An important issue in dropout research is that dropout can be defined in various ways, and these definitions influence the dropout percentages and dropout predictors (De Haan et al. 2013). Many studies define dropout in terms of the number of sessions attended implicating that patients attending fewer than the specified number of sessions are categorized as dropouts (Baruch et al. 2009). However, both treatment completion and dropout can occur after any number of sessions, and not all premature terminators represent treatment failure. As an extra complication some authors argue that patients who are referred to other services or providers are a separate group and can not be classified as dropouts or completers because treatment is continued at the referred site (Armbruster and Fallon 1994; Johnson et al. 2008). These referrals mostly occur when specialist care is needed, for instance, a specific mental health care institution for youth with intellectual disability, a mental health care institution

for youth with addiction problems, or a specialized site for eating disorders. It is clear that these patients should not be regarded as dropouts, because the treatment is being continued, nor should they be considered as completers, because the problems are still present and the required treatment has not been completed yet. Until now however, most studies did not identify referred patients as a separate group; these patients were either categorized as dropouts or completers depending on the definition of dropout being used, or were not mentioned at all. It is not known whether referral has similar negative consequences as dropout. For instance, it might be that referred patients receive sufficient and proper treatment at the new sight and they will become completers, or it might be that the patient will drop out at the referred sight. In the first case, one can expect more positive consequences of the referral than in the second case.

This present study intends to extend the knowledge on dropout in psychotherapy with ethnic majority and minority youth in a community based practice. In contrast to former studies, we will examine children and adolescents separately. In an earlier review on dropout in child and adolescent psychiatry it was stated that it is important to perform separate studies on dropout for children and adolescents, because different predictors might emerge for both groups (Armbruster and Kazdin 1994). Predictors might differ as a function of differences between parents' involvement in therapy at different ages, and the client's understanding of why he/she is in therapy (Yeh et al. 1994). Another addition of present study to the existing literature is that we examine the referrals as a separate termination group, as was proposed by several authors (Armbruster and Fallon 1994; Johnson, et al. 2008). Patients who did not drop out of therapy, will be categorized as completers or referrals. Because of the aforementioned difficulties with dropout definition, we will use the following definition: 'the termination of treatment at any point of time after inscription that occurs on the child's or parent's unilateral decision, while the therapist thinks further treatment is needed' (Wierzbicki and Pekarik 1993). According to this definition all dropouts are accounted for, independent of the number of attended sessions. Another incremental contribution of present study is that we use both parental education and parental occupation as separate SES indicators, to analyze whether one of the constructs had a different relationship with dropout than the other.

We will include five child and family factors, i.e., ethnic background, age, gender, SES, and problem severity. Based on past research it is hypothesized that an ethnic minority background, lower SES, and higher externalizing problem severity will predict dropout. For the variables age and gender we can not give expectations. Because of the reasons described in the former paragraph we expect to find differences between children and adolescents. Specifically, because of the differences in parents' involvement in therapy (i.e., more involvement with children) we expect the family variable (i.e., SES) to be the most important dropout predictor for children, and the child variables (i.e., ethnicity and problem severity) to be the most important dropout predictors for adolescents. We also expect different factors to be predictors for dropout versus referral. Because past research on this subject is lacking, we can not give specifics on which differences we expect here.

## Methods

### Participants

The sample consisted of ethnic majority and ethnic minority outpatient children (age 5–11,  $n = 399$ ) and adolescents (age 12–20,  $n = 352$ ) who entered one of the ambulatory

settings of De Jutters, a community based Dutch Youth Mental Health Care (YMHC) center in The Hague (one of the main cities of The Netherlands) in 2008. After entering treatment, patients were followed until they terminated treatment at the outpatient settings (i.e., the last patients terminated treatment in 2012). All patients that started treatment were included in the study, there were no inclusion or exclusion criteria. Upon arrival, patients (from the age of 12), and the patients' parents for youth up to 16 years, were asked to sign an 'informed consent form' to indicate whether their data could be used anonymously for scientific research.

## Measures

### *Sociodemographic Information*

The sociodemographic variables that were needed for the purposes of our study (i.e., ethnic background, SES-related variables, age, gender), were automatically registered when clients were enrolled for therapy. The ethnic background of the patients was specified as follows (CBS 2012): if the country of birth of both parents was the Netherlands (regardless of the country of birth of the child), the child was seen as native Dutch. If one or both parents was born abroad, the child was seen as an ethnic minority. A division in five ethnic groups was made: native Dutch, Surinamese/Antillean (Caribbean), Turkish/Moroccan (Mediterranean), other western ethnic minorities, and Other non-western ethnic minorities. We followed the guidelines of the Dutch government to distinguish between western and non-western countries. Of the children, 209 had a Dutch ethnicity (52.4 %), 49 had a Surinamese/Antillean ethnicity (12.3 %), 33 had a Moroccan/Turkish ethnicity (8.3 %), 66 had an other western ethnicity (16.5 %), and 42 had an other non-western ethnicity (10.5 %). Of the adolescents, 169 had a Dutch ethnicity (48.0 %), 63 had a Surinamese/Antillean ethnicity (17.9 %), 18 had a Moroccan/Turkish ethnicity (5.1 %), 70 had an other western ethnicity (19.9), and 27 had an other non-western ethnicity (7.7 %).

For the socioeconomic information, we used the classification of the Dutch National Center for statistic information for the highest level of parental occupation, and the highest level of parental education (CBS 2012). Highest level of parental education (SES education) was divided in three groups: level 1—primary school or lowest level secondary school, level 2—average or highest level secondary school, and level 3—bachelor or master degree. Of the children, 45 had parental SES education level 1 (11.3 %), 197 had parental SES education level 2 (49.4 %), and 157 had parental SES education level 3 (39.3 %). Of the adolescents, 55 had parental SES education level 1 (15.6 %), 174 had parental SES education level 2 (49.4 %), and 123 had parental SES education level 3 (34.9 %). Parental occupation (SES occupation) was also divided into three groups: level 1—no occupation, level 2—elementary, low or secondary occupations, and level 3—high or scientific occupations. Of the children, 45 had parental SES occupation level 1 (11.3 %), 183 had parental SES occupation level 2 (45.9 %), and 171 had parental SES occupation level 3 (42.9 %). Of the adolescents, 57 had parental SES occupation level 1 (16.2 %), 178 had parental SES occupation level 2 (50.6 %), and 117 had parental SES occupation level 3 (33.2 %).

### *Emotional and Behavioral Problems*

The Dutch versions of the Child Behavior Checklist (Achenbach 1994a; Verhulst et al. 1996), and the Youth Self Report (Achenbach 1994b; Verhulst et al. 1997) were used to

obtain standardized parent-reports on the children's emotional and behavioral problems, and standardized adolescent self-reports on their own emotional and behavioral problems. Both are robust questionnaires, and they have performed well in other cultures and circumstances yet alien to the original sample (Leung et al. 2006; Rescorla et al. 2007; Verhulst et al. 2003). In the Netherlands, the questionnaires are validated for and have been frequently used with both ethnic majority and minority parents and adolescents (Janssen et al. 2004; Murad et al. 2003; Reijneveld et al. 2005; Stevens et al. 2003).

### *Termination Status*

Three different categories of termination statuses were used: dropout, completer, and referral. To discriminate between these different termination groups, the reasons for termination were taken into account. The reasons were derived from the patient records where therapists could choose between predefined categories of termination. As mentioned before, dropout was defined as "the termination of outpatient treatment at any point of time after inscription, that occurred on the child or parents' unilateral decision, while the therapist thought that further treatment was needed." Completion was defined as "the termination of outpatient treatment at any point of time during therapy, that occurred with accordance of both the therapist and the patient or parent, while both agreed that treatment goals were (at least partly) reached." Referral to another service or provider was defined as "termination of treatment at the outpatient department of De Jutters at any point of time during treatment, while the patient was referred to another department within the organization or an institution outside the organization and therapy was continued there." Examples of departments within the organization were the (day-care) clinics, examples of institutions outside the organization were a specific institution for youth with intellectual disabilities, a specific institution for youth with addiction problems, or a specific intercultural institution. Of the children, 256 were completers (64.2 %), 50 were referred (12.5 %), and 93 were dropouts (23.3 %). Of the adolescents, 175 were completers (49.7 %), 42 were referred (11.9 %), and 135 were dropouts (38.4 %). The termination statuses differed significantly between children and adolescents [ $\chi^2(2) = 20.795$ ,  $p = .000$ ], this especially accounted for the termination status dropout versus the termination status completer (and not for the termination status referred). Children were more often completers than adolescents, and adolescents were more often dropouts than children.

## **Results**

First, we analyzed the correlations (Pearson's  $r$ ) between all independent variables for both the child and the adolescent group. Some high and significant associations between independent variables were found (Table 1) and were therefore tested for multicollinearity. Multicollinearity refers to the problem where there are moderate to high intercorrelations among the predictors, which may hinder the execution of multivariate analyses. The variance inflation factor (VIF) for a predictor indicates whether there is a strong linear association between it and all the remaining predictors. Multicollinearity was not found for the predictors for both the child and the adolescent group; the VIF's were low (i.e., between values 1 and 2).

Second, we conducted several bivariate tests (i.e.,  $\chi^2$  test for proportions and analysis of variance (ANOVA) for continuous data) to examine which of the predictor variables showed significant associations with the dependant variable Termination Status. Also, we

**Table 1** Correlations (Pearson's  $r$ ) between all predictor variables for the child group and for the adolescent group

Predictors	Adolescent group						
	1	2	3	4	5	6. YSR int	7. YSR ext
Child group							
1. Gender		.02	-.06	.02	-.03	.36**	.01
2. Age	.01		-.00	.08	.06	.20**	.06
3. Ethnicity <sup>a</sup>	.02	-.00		.11*	.20**	-.09	.00
4. SES education	.01	.05	.10		.59**	.03	-.01
5. SES occupation	-.02	.00	.14**	.67**		.06	.07
6. CBCL int	.10*	.13*	.10	-.05	-.07		.31**
7. CBCL ext	-.07	-.07	.07	-.11*	-.09	.45**	

Left under the diagonal are the numbers for the child group; right above the diagonal are the numbers for the adolescent group

<sup>a</sup> In this analyses we used a dichotomous variable (i.e., native Dutch versus ethnic minority) for ethnicity  
\*  $p < .05$ ; \*\*  $p < .01$

examined which of the predictor variables should be included in the multinomial logistic regression models. Following the recommendations of Hosmer and Lemeshow (2000), predictors with a significance level of .25 or less in the bivariate analyses should be included in the multivariate models.

The bivariate tests ( $\chi^2$  and ANOVA) showed that two of the seven independent predictor variables showed significant associations ( $p < .05$ ) with termination status within the *child* group (Table 2): ethnicity and parental SES occupation. With respect to ethnicity [ $\chi^2(8) = 15.54, p = .05$ ], Surinamese/Antillean and 'other non-western' children had the highest proportion within the dropout group, Turkish/Moroccan and 'other western' children had the highest proportion within the referral group, and Dutch children had the highest proportion within the completer group. With respect to parental SES occupation [ $\chi^2(4) = 13.02, p = .01$ ], completers had the highest SES levels, and referrals had the lowest SES levels.

For *adolescents*, five of the seven independent predictor variables showed significant associations ( $p < .05$ ) with termination status (Table 2): age, ethnicity, parental SES occupation, YSR externalizing scores, and YSR internalizing scores. Dropouts were the oldest patients while completers were the youngest patients [ $F(2, 349) = 3.98, p = .02$ ]. Posthoc analyses (Bonferroni) indicated that dropouts were significantly older than completers ( $p = .02$ ), and no significant differences in age were found between referrals and dropouts or completers. With respect to ethnicity [ $\chi^2(8) = 15.88, p = .04$ ], Surinamese/Antillean and 'other non-western' adolescents had the highest proportion within the dropout group, Turkish/Moroccan adolescents had the highest proportion within the referral group, and Dutch and 'other western' adolescents had the highest proportion within the completer group. With respect to parental SES occupation [ $\chi^2(4) = 11.34, p = .02$ ], completers had the highest SES occupation levels, while dropouts the lowest SES occupation levels. And for YSR externalizing scores [ $F(2, 349) = 3.38, p = .04$ ] and YSR internalizing scores [ $F(2, 349) = 3.26, p = .04$ ] referrals had the highest internalizing and externalizing scores, dropouts had the lowest externalizing scores, and completers had the lowest internalizing scores. Posthoc analyses (Bonferroni) indicated that referrals had significant higher YSR externalizing scores than dropouts ( $p = .03$ ), while no differences in YSR externalizing scores were found between completers and the other two groups.



**Table 2** Bivariate tests with Child (n = 399) and Adolescent (n = 352) patients

Predictors	Child patients				Adolescent patients				F or $\chi^2$
	Total	Completers n (%) or M (SD)	Referrals n (%) or M (SD)	Dropouts n (%) or M (SD)	Total	Completers n (%) or M (SD)	Referrals n (%) or M (SD)	Dropouts n (%) or M (SD)	
Age	8.06 (2.00)	7.99 (1.92)	8.14 (2.12)	8.20 (2.16)	14.96 (1.87)	14.69 (1.72)	15.10 (1.62)	15.27 (2.06)	3.98* 4.68 <sup>++</sup>
Gender									
Boy	268 (67.2)	174 (68.0)	31 (62.0)	63 (67.7)	160 (45.5)	89 (50.9)	19 (45.2)	52 (38.5)	
Girl	131 (32.8)	82 (32.0)	19 (38.0)	30 (32.3)	192 (54.5)	86 (49.1)	23 (54.8)	83 (61.5)	
Ethnicity									
Surinamese/Antillean	49 (12.3)	27 (10.5)	7 (14.0)	15 (16.1)	63 (17.9)	23 (13.1)	7 (16.7)	33 (24.4)	15.88*
Turkish/Moroccan	33 (8.3)	17 (6.6)	10 (20.0)	6 (6.5)	18 (5.1)	9 (5.1)	6 (14.3)	8 (5.9)	
Other western	66 (16.5)	43 (16.8)	9 (18.0)	14 (15.1)	70 (19.9)	38 (21.7)	9 (21.4)	23 (17.0)	
Other non-western	42 (10.5)	26 (10.2)	3 (6.0)	13 (14.0)	27 (7.7)	10 (5.7)	3 (7.1)	14 (10.4)	
Dutch	209 (52.4)	143 (55.9)	21 (42.0)	45 (48.4)	169 (48.0)	95 (54.3)	17 (40.5)	57 (42.2)	
SES education									
Level 1	45 (11.3)	23 (9.0)	11 (22.0)	11 (11.8)	55 (15.6)	21 (12.0)	10 (23.8)	24 (17.8)	6.78 <sup>++</sup>
Level 2	197 (49.4)	127 (49.6)	24 (48.0)	46 (49.5)	174 (49.4)	87 (49.7)	23 (54.8)	64 (47.4)	
Level 3	157 (39.3)	106 (41.4)	15 (30.0)	36 (38.7)	123 (34.9)	67 (38.3)	9 (21.4)	47 (34.8)	
SES occupation									
Level 1	45 (11.3)	20 (7.8)	12 (24.0)	13 (14.0)	57 (16.2)	19 (10.9)	7 (16.7)	31 (23.0)	11.34*
Level 2	183 (45.9)	119 (46.5)	23 (46.0)	41 (44.1)	178 (50.6)	87 (49.7)	24 (57.1)	67 (49.6)	
Level 3	171 (42.9)	117 (45.7)	15 (30.0)	39 (41.9)	117 (33.2)	69 (39.4)	11 (26.2)	37 (27.4)	
CBCL/YSR internalizing	12.22 (8.68)	12.34 (9.10)	13.04 (9.43)	11.44 (6.91)	18.24 (11.00)	17.35 (11.35)	22.14 (11.18)	18.18 (10.28)	3.26*
CBCL/YSR externalizing	14.79 (9.88)	14.66 (9.99)	17.48 (19.46)	13.70 (9.65)	14.49 (9.02)	14.63 (8.88)	17.48 (10.53)	13.39 (8.53)	3.38*

+ p &lt; .25; ++ p &lt; .10; \* p &lt; .05; \*\* p &lt; .01

Also, posthoc analyses (Bonferroni) indicated that referrals had significant higher YSR internalizing scores than completers ( $p = .03$ ), while no differences in YSR internalizing scores were found between dropouts and the other two groups.

Of the seven independent predictor variables, four should be included in the multinomial logistic regression models according to the  $p < .25$  level for the *child* group (Table 2): ethnicity, parental SES education, parental SES occupation, and CBCL externalizing scores. All seven independent variables should be included in the multinomial logistic regression models according to the  $p < .25$  level for the *adolescent* group (Table 2).

Third, multinomial logistic regression models were used as main method of multivariate analysis to compare more than two groups at once. The independent variables were analyzed in these multinomial logistic regression analyses (where significance levels of  $p < .05$  were used) to indicate which of them were significant predictors for termination status when being corrected for the influence of the other predictors. The termination status dropout was used as the reference category, because we wanted to predict the chances for dropout. The multinomial models tested the strength and significance of each potential predictor; chances to belong to the completer or referral group versus the dropout group were indicated by odds ratios (OR) with 95 % confidence intervals (CI), which were computed by exponentiation of the logit coefficients.

### Children

The Nagelkerke  $R^2$  indicated that 9 % of the variance was explained by this model. Considering the completer group and the dropout group (Table 3), no significant differences in chances to drop out as opposed to complete therapy were found.

Considering the referral group and the dropout group (Table 3), it was found that patients with a Moroccan or Turkish ethnicity ( $OR\ 0.28$ ;  $CI\ 0.08\text{--}0.92$ ;  $p = .04$ ) and higher CBCL externalizing scores ( $OR\ 0.96$ ;  $CI\ 0.93\text{--}0.99$ ;  $p = .03$ ) were less likely to drop out (and more likely to be referred) than patients with a Dutch ethnicity and less externalizing problems respectively.

### Adolescents

The Nagelkerke  $R^2$  indicated that 15 % of the variance was explained by this model. Considering the completer and the dropout group (Table 3), older ( $OR\ 1.21$ ;  $CI\ 1.06\text{--}1.39$ ;  $p = .00$ ) and Surinamese/Antillean ( $OR\ 2.17$ ;  $CI\ 1.12\text{--}14.35$ ;  $p = .02$ ) patients were more likely to drop out (and less likely to complete therapy), than younger and Dutch patients respectively (Table 3). Also, boys ( $OR\ 0.60$ ;  $CI\ 0.35\text{--}1.00$ ;  $p = .05$ ) were less likely to drop out and more likely to complete therapy than girls, and patients with parental SES occupation level 1 were more likely to drop out and less likely to complete therapy than a patient with parental SES occupation level 3 ( $OR\ 3.13$ ;  $CI\ 1.28\text{--}7.69$ ;  $p = .01$ ). Considering the referral group and the dropout group (Table 3), no significant differences in chances to drop out as opposed to being referred were found.

## Discussion and Conclusions

This study examined the relationship between five relevant dropout risk factors in child and adolescent psychotherapy (i.e., ethnic background, age, gender, SES, and problem

**Table 3** Multinomial regression analysis for the child ( $n = 399$ ) and adolescent ( $n = 352$ ) patients

Predictors	Child patients		Adolescent patients	
	Reference category = dropouts ( $n = 93$ )		Reference category = dropouts ( $n = 135$ )	
	Completers ( $n = 256$ ) OR (95 % CI)	Referrals ( $n = 50$ ) OR (95 % CI)	Completers ( $n = 175$ ) OR (95 % CI)	Referrals ( $n = 42$ ) OR (95 % CI)
Age	–	–	1.21 (1.06–1.39)**	1.10 (0.89–1.33)
Boy <sup>a</sup>	–	–	0.60 (0.35–1.00)*	0.61 (0.28–1.33)
<i>Ethnicity</i> <sup>b</sup>				
Surinamese/Antillean	1.64 (0.79–3.45)	0.94 (0.32–3.03)	2.17 (1.12–4.35)*	1.67 (0.60–4.76)
Turkish/Moroccan	0.94 (0.34–2.63)	0.28 (0.08–0.92)*	1.11 (0.38–3.33)	0.40 (0.11–1.52)
Other western	1.03 (0.51–2.04)	0.72 (0.27–1.96)	0.90 (0.47–1.69)	0.76 (0.29–2.04)
Other non-western	1.45 (0.68–3.13)	2.13 (0.53–9.09)	2.13 (0.85–5.26)	1.19 (0.29–5.00)
<i>SES education</i> <sup>c</sup>				
Level 1	1.15 (0.40–3.33)	0.75 (0.18–3.03)	0.86 (0.33–2.27)	0.28 (0.06–1.23)
Level 2	1.05 (0.49–2.27)	1.18 (0.37–3.70)	0.78 (0.32–1.89)	0.42 (0.11–1.59)
<i>SES occupation</i> <sup>c</sup>				
Level 1	1.75 (0.67–4.55)	0.59 (0.16–2.17)	3.13 (1.28–7.69)*	2.70 (0.61–11.11)
Level 2	0.98 (0.45–2.13)	0.75 (0.23–2.44)	1.67 (0.68–4.17)	1.56 (0.42–5.88)
CBCL/YSR internalizing	–	–	0.99 (0.97–1.02)	0.96 (0.93–1.00)
CBCL/YSR externalizing	0.99 (0.96–1.01)	0.96 (0.93–0.99)*	0.99 (0.96–1.02)	0.96 (0.93–1.00)

<sup>a</sup> Girls are used as reference category

<sup>b</sup> The Dutch subgroup is used as reference category

<sup>c</sup> Level 3 is used as reference category

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

severity), and how they contribute to the risk profile of potential dropouts. We intended to fill a knowledge gap by differentiating between children and adolescents, between three termination groups: dropouts, completers, and referrals, and between two SES indicators (i.e., parental education and parental occupation). Our hypothesis that different risk profiles would emerge for children and adolescents was confirmed. Our hypothesis that the variables that predict who will be referred are different from those that predict who will complete or drop out of therapy, was also confirmed. Contrary to our expectations however, we did not find the family variable (i.e., lower SES) to be an important dropout predictor for children. Rather, it was found that children with a Turkish or Moroccan background and higher CBCL externalizing scores were less likely to drop out and more likely to be referred than children with a Dutch ethnicity or less externalizing problems, respectively. And also contrary to our expectations, we found lower parental SES to be an important dropout predictor for adolescents. It was found that older, female, Surinamese or Antillean, and low SES adolescents were more likely to drop out of therapy and less likely to complete therapy, than younger, male, Dutch and high SES adolescents respectively. Taken together, for children only differences were found between dropouts and referrals, while for adolescents only differences were found between dropouts and completers.

In former studies it was unclear whether referred patients were seen as completers or as dropouts. Our findings confirm the additional value of our method of considering referred patients as a separate group. We emphasize that patients who are referred before therapy has ended, can neither be seen as completers nor dropouts, because the treatment is being continued elsewhere (Armbruster and Fallon 1994; Johnson, et al. 2008), and it is not known how the patient will ultimately terminate therapy. The aggregation of referral patients and other termination groups in the majority of earlier dropout studies may have clouded interpretation of results on dropout predictors.

Our results also indicated that it depends on the specific ethnic background whether ethnic minority status is a dropout predictor. This was also found in former studies where the results on which specific ethnic minority group is at a higher risk for dropout differed per study (De Haan et al. 2013). The majority of the former studies were conducted in the United States though where other minorities reside than in The Netherlands. As far as we know there is no other Dutch study similar to our study, and we could thus not compare our results with the results of other Dutch studies. Our results indicated that Moroccan and/or Turkish children were at a lower risk to drop out, but had a higher chance to be referred than Dutch children, while Surinamese and/or Antillean adolescents were at a higher risk to drop out and had a lower chance to complete therapy than Dutch adolescents. Further analyses indicated that the Moroccan and not the Turkish children had a higher chance to be referred, and that the Surinamese and not the Antillean adolescents had a higher dropout chance.

Although our sample size of Moroccan patients was rather small, and the results can thus not be seen as conclusive, we tried to find an explanation for the higher referral chance. We analyzed the sites where the Moroccan patients were referred to, and it appeared that most were referred to the specific mental health care site for youth with (mild) intellectual disabilities. Apparently, most of the Moroccan patients in our research group had psychiatric problems that were associated with intellectual disabilities and the professionals at the YMHC institution where present study was conducted, are not equipped to deal with these problems. An alternative explanation might be that these patients have a lower mastery of the Dutch language and were therefore seen as having intellectual disabilities by the professional (Hoogsteder and Dias 2011; Verboom 2002). Unfortunately we did not have information on the appropriateness of the referrals, or on how the therapy was terminated at the referred site. Therefore we do not know whether a referral has negative or positive consequences for the patient. It would have been interesting to include such information and we surely advocate that this is done in future studies. The reason that Surinamese adolescents in particular were at a higher risk to drop out, is difficult to explain. And because this particular sample size was again small, the results can not be seen as conclusive. Future studies should thus clarify whether these results are also found in other youth mental health care institutions in The Netherlands.

Our finding that with adolescents only parental SES occupation, and not parental SES education had a predictive value for dropout is consistent with suggestions of several authors (Kaufman et al. 1997; Winkleby et al. 1992) that the relationship between SES and variables such as (mental) health or therapy outcome might differ according to the specific definition that is used for SES. For instance, the level of education does not necessarily result in an equivalent occupational achievement, especially in the case of unemployment (parental SES occupation level 1), because this can occur with every level of education. Also, immigrant parents might have low levels of education, caused by circumstances in their country of birth, such as not having access to education (Hibbert et al. 2003). Lower education levels thus do not have to indicate that the intellectual capabilities of these

parents are low as well. In the host country, these families might gain higher occupational levels than expected, based on their education level. Therefore, the relationship between occupational and educational level is not perfectly linear, although both constructs are highly correlated. This might explain why only one of the two variables had a predictive value for dropout. In the present study, adolescent patients from unemployed parents (parental SES occupation level 1) had the highest chance to drop out, indicating that practical obstacles (e.g., not enough money to pay for transportation) or a lack of awareness of possible psychological problems may have played a role here (De Jong 2010). As stated, in The Netherlands utilization of health care services is largely independent from financial constraints, because all Dutch children are covered by public or private health insurance (Zwaanswijk 2005). We therefore did not expect financial constraints to play a significant role in therapy continuation. But it is still possible that minor financial constraints related to practical obstacles (and not related to whether the therapy can be paid for) do play a significant role for adolescents.

Our finding that both ethnicity and parental SES had a predictive value for dropout despite being controlled for each other is an interesting addition to the debate on the role of ethnicity and SES in (youth) mental health care. Because both variables are correlated, many authors state that SES variables actually explain the differences (on for instance prevalence of psychiatric disorders or accessibility of mental health care institutions) between ethnic groups, or that we are actually talking about ethnic or cultural variables when SES differences are found (Cooper 2002; Kamperman et al. 2007; Stronks and Kunst 2009; Stronks et al. 2001). The present study does not confirm nor invalidate these statements. It was rather found that both variables are important, independent, contributors in forming a risk profile for dropout.

In the present study, older age was a risk factor for dropout. Specifically, adolescents dropped out more often than children, and older adolescents dropped out more often than younger adolescents. This is not in accordance with the findings in our meta-analysis (De Haan et al. 2013) where the overall effect sizes for the predictive value of age were small and non-significant. In addition, male adolescents were found to have a higher chance to complete therapy and a lower chance to drop out than female adolescents. This is also contradictory to the findings from our meta-analysis, where male gender was a significant general predictor for dropout, although the overall effect size was small. It might be that differences in the samples (e.g., former studies were not conducted in The Netherlands, other ethnic groups were differentiated, in present study all youth have health insurance) can (partly) explain the different findings.

The finding that children with more severe externalizing problems were more likely to be referred to other services than to drop out, contrasts with results from former studies where a higher presence of externalizing problems usually elevated the risk to drop out. However, in these former studies the presence or level of externalizing problems was only compared between dropouts and completers, while in the present study the predictive value of higher externalizing scores was found for the referral group as opposed to the dropout group. Besides, the odds ratios showed that the chance was only a little higher. Indeed, referrals inside the organization most often concerned referral to the (day-care) clinics for conduct problems and the clinic for crisis intervention. With respect to institutions outside the organization, the patients were most often referred to a specialized institution for youth with mild intellectual disabilities, a preventive care site, and a forensic mental health care institution. Apparently, externalizing problems were in some cases too serious to be treated in the outpatient departments, and patients were therefore referred to an appropriate (day-care) clinic. In other cases, the externalizing problems were apparently associated with

existing or perceived intellectual disabilities, or it was decided that only an appropriate training (e.g., to learn how to cope with externalizing problems) was needed at the preventive care site. In some cases, the patient was apparently convicted for a delinquent activity (that was related to the externalizing psychiatric problem) during treatment, and therefore the treatment had to be continued at the forensic setting.

Some conclusions and clinical implications could be derived from the above. Youth mental health care professionals from both inside and outside the Netherlands should be aware of several child, parent and family characteristics when treating children and adolescents. For patients with certain characteristics (i.e., a minority background, a lower SES, a higher externalizing problem severity, and being older or being female), professionals can bear in mind that there is an increased risk for these patients to drop out of therapy or to be referred to another institution. These characteristics are hard to influence however since they are 'static', our first recommendation is therefore mainly to be aware of these characteristics and pay extra attention to cues on the patient or parent not willing to continue therapy. When these cues are timely observed, the dropout can possibly be prevented. Although this does not derive directly from our results, we propose that clinicians could proactively engage in problem-solving with the family if there are potential obstacles to treatment, and they could invite the family to explore some of the factors that might interfere with continuing therapy (e.g., effects of ethnic/cultural background, low SES, etcetera). In addition, therapists could further educate themselves on potential impact of the dropout risk factors and consider obtaining additional supervision or advocating for patients as needed. Last, we also recommend that professionals inform on how the treatment continues and how it was terminated at the referred site in order to determine whether the referral was appropriate and successful or should be avoided the next time in similar cases.

### **Limitations and Future Research Directions**

Our study has several limitations. First, some of the ethnic groups were rather small. For instance, there were only four Moroccan adolescents and thirteen Turkish children. We therefore decided to combine groups and compose one group of Moroccan/Turkish patients and one group of Surinamese/Antillean patients. This can have implications for the significance and the generalizability of our results. On the other hand, our purpose was to analyze which ethnic groups were at a higher risk for dropout (and not to analyze the dropout risks for ethnic minorities as a whole), and we therefore chose to maintain a certain distribution of ethnic groups despite some groups still being small. In future research, we hope to include larger numbers of patients in each group.

Second, we could not take the third parental SES indicator (level of income) into account. As stated in the introduction, SES is usually measured by determining education, income, occupation, or a composite of these dimensions. We could only include two of these indicators, i.e., occupation and education. Including the third indicator would have given a more complete picture of the effect of SES, but unfortunately information on this variable was not registered. We thus advocate that this third SES indicator will be included in future research.

Third, our focus here was on several child and family factors in relation to dropout, referral or completion. This leads to more knowledge about a dropout risk profile, which can in turn be used to provide extra attention to the at-risk patients to prevent them from dropping out. Of course, these child and family factors are not the only variables predicting

dropout. This was confirmed by our results that only a small amount of variation was explained by the variables include in the study. Indeed, several possible dropout predictors were missing that could have explained more variance (e.g., therapy and therapist variables). We advocate that in future dropout studies, important therapy and therapist variables (e.g., the therapeutic relationship, patient/family perception of the therapist, perceived relevance of the treatment according to the patient/parent, agreement regarding the therapy goals, for an overview see De Haan et al. 2013) are taken into account together with the important child and family variables that were examined in present study. Only then can we generate a complete picture on the risk profile for dropout or referral.

Fourth, we did not have information on how treatment was terminated at the referred site or whether the referral was appropriate, we thus do not know whether being referred has positive or negative consequences. It is interesting for professionals to become aware of this phenomenon and to think about the appropriateness of the referral. We recommend this information to be taken into account in future studies.

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