

# No-shows, drop-outs and completers in psychotherapeutic treatment: Demographic and clinical predictors in a large sample of non-psychotic patients

MORTEN FENGER, ERIK LYKKE MORTENSEN, STIG POULSEN,  
MARIANNE LAU

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*Background:* A primary challenge in mental health services is a high rate of non-attendance (i.e. no-show and drop-out) for patients referred to treatment for psychiatric disorders. *Aim:* The aim of the present study was to assess the influence of demographic and clinical variables on mental health treatment attendance and to investigate differences in predictors for no-shows and drop-outs. *Methods:* A naturalistic study of 2473 non-psychotic consecutive patients offered psychotherapeutic treatment at a community mental health centre in Denmark. Fifteen demographic and clinical variables were recorded at assessment. Bivariate and multiple logistic regression analyses were conducted to investigate the associations between these variables and no-show and drop-out. *Results:* Of the 2473 participants, 668 (27.0%) did not show up for treatment, whereas 290 (11.7%) dropped out of treatment. Regression analysis showed that the significant predictors of treatment no-show were: age below 25, no more than the compulsory 9 years of school education, no sick leave, a diagnosis of personality disorder, a Global Assessment of Functioning score (GAF) below 40 or above 70, no previous psychiatric/psychological treatment, no use of antidepressants and substance abuse. The significant predictors of treatment drop-out were: age below 45, no more than the compulsory 9 years of school education or up to 11 years of school education, no vocational/university education, unemployment and substance abuse. *Conclusion:* No-show was predicted by both demographic and clinical factors, whereas drop-out was predicted by demographic factors and substance abuse as the only clinical factor. Results and strategies to reduce non-attendance are discussed.

• *Drop-out, Mental disorders, Non-attendance, No-show, Psychotherapy.*

Morten Fenger, M.S.Psych., Nørre Alle 21, 4 tv, DK-2200, Copenhagen N, Denmark,  
E-mail: Morten.Fenger@regionh.dk; Accepted 9 August 2010.

A primary challenge in mental health services is high rates of patients who are referred to and offered treatment, but fail to show up or fail to stay in treatment. Large-scale studies in clinical and psychiatric settings have found that between 30% and 40% of the patients referred to mental health treatment never showed up (1, 2). In a meta-analysis of drop-out in psychotherapeutic treatment ( $n=125$ ) the average number of patients who started treatment, but dropped out, was estimated to be 47% (3). Because of the availability of patient data, the characteristics of drop-out patients are much more investigated than that of no-show patients and only a few studies have investigated whether predictors of no-show are different

from predictors of drop-out. Furthermore, these studies are difficult to compare, as they have included different diagnostic groups, treatment modalities and settings, prediction variables and differ in the way patient absence is labelled, categorized and assessed. Attrition can occur anywhere in the treatment process—at referral, at assessment, at the first appointment, at treatment start, somewhere in the treatment course and at follow-up (3, 4). Having these uncertainties in mind, we have categorized studies investigating predictors of attrition in those focusing on patients who fail to show up to treatment start (no-shows) and those focusing on patients who drop out prematurely after treatment start (drop-outs).

With regard to drop-out studies, the analysed predictors can be divided into clinical and demographic variables. Among the demographic variables, young age (5–9), being unmarried (7, 10) or living alone (7, 11), low education (3, 11), low income (3, 5, 6, 11) and being unemployed (8, 12) have been found to be significant predictors of drop-out. Some of these predictors seem to be linked together. Thus, Norwegian surveys have shown that a low level of education and unemployment is associated with both mental problems (13) and with low rates of attendance (14). Likewise, reviews of drop-out studies found that lower social class variables were most strongly associated with drop-out (3, 4). With regard to clinical factors in drop-out studies, the results are more diverse. Among the factors commonly investigated, substance abuse (4, 9, 15), personality disorder (4, 12, 15), comorbid psychiatric disorders (5, 16) and higher severity of symptoms/distress (9, 15), as well as lower severity of symptoms/distress (17, 18) have all been found to be significant predictors of drop-out. Other clinical variables predicting high rates of drop-out are previous psychiatric admittance (19) and current psychopharmacological treatment (15, 18), although results from systematic reviews give evidence for better adherence when medicine and psychotherapy are combined compared with psychopharmacological treatment alone, but not compared with psychotherapy (20, 21).

Since relatively few studies focus on the characteristics of no-show patients generalisation is problematic. However, the available findings point at the same predictors as in the drop-out studies. Younger age, being unmarried, unemployed and less educated have been found to be significant demographic predictors of no-show (10, 22–24). With respect to the clinical variables, substance abuse, personality disorder, psychopharmacological treatment and previous psychiatric treatment are among the significant predictors (10, 23–27).

Only a small number of studies have compared predictors of no-show and drop-out in the same sample (1, 23, 28, 29). In a sample of 731 consecutive patients treated at an outpatient clinic for anxiety disorders, Issakidis & Andrews (1) compared no-shows (30.4%) with show-ups and drop-outs (10.4%) with completers. They found that lower severity of symptoms and being female was associated with drop-out but not with no-show, whereas a primary diagnosis of depression and having a child at home was associated with no-show but not with drop-out. Psychiatric comorbidity was associated with both no-show and drop-out. The authors concluded that neither demographic nor clinical variables were strong determinants of attendance.

Three studies investigated no-show and drop-out at various stages of contact with mental health services. Rossi and colleagues (23) compared no-show patients (23%) with early drop-out patients (40%) and completer patients (37%)

in a sample of 1101 consecutive mental health patients. No-shows, consisting of both discharged patients (15%) and patients failing to show-up (8%), typically had a lower level of symptom severity, a non-psychosis diagnosis and a lower level of education both in comparison with drop-outs and with completers. Drop-outs were not compared with completers. In an outpatient sample of 287 patients with social phobia, Lincoln and colleagues (28) conducted an analysis of variance between attrition and 25 demographic and clinical predictors. They found that no-shows only differed significantly from completers by having a higher number of comorbid diagnoses, having higher comorbidity symptom scores and being married or having a partner. No differences between drop-outs and completers were found. Finally, Self and colleagues (29) compared the degree of social deprivation (employment and economic resources) between no-shows, early drop-outs, late drop-outs and completers at a district psychiatric service in the UK ( $n=676$ ). Both no-shows and early drop-outs had a higher level of social deprivation than late drop-outs and completers. Among “early drop-outs”, patients with high social deprivation were twice as likely to drop out as non-deprived patients. The authors concluded that socio-economic factors had a significant influence on attrition and stated that no studies on attrition should be considered as valid if socio-economic factors were not reported.

In summary, no clear differences of neither demographic nor clinical predictors of no-show versus drop-out in psychotherapeutic treatment have been observed. Few studies are focusing directly on comparing predictors of the two types of non-attendance, but the findings from the four studies reported here indicate that the degree of social deprivation may differentiate drop-outs from completers and that severity of symptoms and comorbid diagnosis may differentiate no-shows from show-ups.

### ***Aim***

The aim of the present study was to investigate the influence of demographic and clinical variables on treatment no-show and drop-out and to identify differences between the two types of non-attendance. Based on previous studies, we expected that no-show would be associated with the severity of symptoms/distress and comorbidity, and that treatment drop-out would be associated with lower socio-economic status.

## **Material and methods**

### ***Design and setting***

The study was a naturalistic cross-sectional study of patients consecutively offered psychotherapy at Stolpegaard Psychotherapy Centre, Mental Health Services, Capital Region of Denmark, during the period from 1 April 2004 to 1 April 2008. The Centre provides treatment for adults suffering from non-psychotic conditions.

The patients are referred from general practitioners and psychiatric units in the region. On average, the patients have to wait 3–5 months between initial assessment and start of treatment. If antidepressants are prescribed before referral, the prescription is re-evaluated at initial assessment, treatment start and during the treatment. Patients were excluded if they were suicidal, had serious substance abuse or organic mental symptoms.

The Centre offers outpatient (80%) and inpatient (20%) treatment in a 5-day unit, primarily group psychotherapy. A typical format of group therapy is 16–20 sessions of 2.5 h duration. Cognitive-behavioural group therapy is offered to patients suffering from anxiety and depression, whereas narrative group therapy is offered to patients with eating disorders. Patients with personality disorders primarily participate in psychodynamic group therapy. Inpatient treatment also includes milieu therapy. Patients not suitable for group therapy receive short-term individual therapy for a mean of 10 sessions.

### Sample

The sample consisted of 2473 patients (Table 1). The average age for the total sample was 33.0 years (standard deviation=10.4); 2025 (83.2%) patients were females, whereas 432 (16.8%) were males. The main diagnostic group was the ICD-10 categories F40–F49: Neurotic, stress-related and somatoform disorders, which comprised 48.6% of the sample. Psychiatric comorbidity was observed in 513 (20.7%) patients, primarily personality disorders (8.9% of the sample). More than one third (36.8%) of the patients were using prescribed antidepressants before referral. Twenty-seven per cent of the sample (668 patients) never showed up for treatment, whereas 11.7% (290 patients) dropped out of treatment and 61.3% (1515 patients) completed their treatment. A slightly lower number of valid cases were seen for some variables because of missing information.

### Ethics

This study was registered at the Danish Data Protection Agency. Since the study was non-invasive, it did not require approval from the local ethics committee. All

Table 1. Diagnostic data.

Psychiatric diagnostic categories (ICD-10)	Primary diagnosis, n=2273* (%)	Comorbidity,† n=513 (%)
Mood disorders (F30–39)	452 (19.9%)	79 (15.4%)
Neurotic disorders (F40–49)	1106 (48.6%)	170 (33.1%)
Behavioural syndromes (F50–59)	447 (19.7%)	43 (8.4%)
Disorders of personality (F60–69)	268 (11.8%)	221 (43.1%)

\*The number of patients is smaller than the complete sample because of missing information.

†Only the first comorbid diagnosis is referred to. Sixty-six patients had a second comorbid condition.

patients received written information about the project and gave their consent to participate.

### Variables

At the assessment interview, demographic and clinical data were registered. *Demographic data* included the following binary variables: gender, children at home, employment status and sick leave status. Additionally, age, marital status, and school education was registered in four categories and vocational/university education in three categories (the categories are presented in Table 2). *Clinical data* included the following binary variables: previous psychiatric/psychological treatment, use of antidepressants and substance abuse. Additionally, primary and comorbid psychiatric diagnoses and duration of symptoms were registered in four categories, and Global Assessment of Functioning (GAF score) was registered on a continuous scale and recoded into three intervals (<40, 40–70, >70). GAF is an observer scale (range 1–100) used for rating a patient's lowest level of psychosocial functioning during the preceding month. A split version of GAF, separately measuring social functioning and psychological symptoms, was used. A GAF score below 40 indicates severe symptoms and impairment and a GAF score above 70 indicates a non-psychiatric condition. The smallest of the two scores was used to assess psychosocial functioning (30).

### Statistics

All data were analysed using Statistical Package for the Social Sciences (SPSS) for Windows, Versions 15 and 18. No-show and drop-out were cross-tabulated with the demographic and clinical data to assess the bivariate associations, which were evaluated with chi-square tests of significance. All significant variables ( $P<0.05$ ) were then included in multiple logistic regression models that predicted no-show and drop-out, respectively. Thus, the logistic regression models ensured mutual adjustment for the effects of all predictor variables with significant bivariate associations with one or both of the outcome variables. Number of patients, odds ratios, confidence intervals and  $P$ -values for categories in each variable are reported. The no-show model compared no-show patients with show-up patients, whereas the drop-out model compared drop-out patients with treatment completers.

## Results

### Cross-tabulation

Tables 2 and 3 present data from cross-tabulation for no-shows versus show-ups as well as drop-outs versus completers against the independent demographic and clinical variables.

For no-shows versus show-ups, age, school education and current sick leave, primary diagnosis, psychiatric

Table 2. Cross-tabulation for demographic variables: no-shows versus show-ups and drop-outs versus completers.

Demographic variables and categories	No-shows, n=668	Show-ups, n=1805	P*	Drop-outs, n=290	Completers, n=1515	P*
Gender			0.450			0.664
Female	81.5%	82.8%		81.9%	82.9%	
Male	18.5%	17.2%		18.1%	17.1%	
Age			<b>0.003</b>			<b>0.034</b>
>45 years	12.3%	14.6%		9.5%	15.6%	
35–44 years	20.9%	24.2%		23.9%	24.3%	
25–34 years	34.2%	36.0%		37.2%	35.7%	
<25 years	32.6%	25.2%		29.5%	24.4%	
Marital status			0.237			0.061
Married/co-habitant	35.2%	38.6%		35.5%	39.1%	
Single	47.4%	43.6%		41.8%	44.0%	
Separated/widow	17.4%	17.8%		22.6%	16.9%	
Children at home			0.324			0.088
No	65.3%	63.1%		58.7%	64.0%	
Yes	34.7%	36.9%		41.3%	36.0%	
School education			<b>0.005</b>			<b>0.000</b>
High school	41.7%	47.7%		36.0%	50.0%	
Up to 11 years	35.3%	35.2%		40.6%	34.1%	
9 years (compulsory)	20.3%	15.4%		20.5%	14.4%	
Attending school now	2.8%	1.7%		2.9%	1.5%	
Vocational/university education			0.188			<b>0.000</b>
Student	22.3%	19.4%		17.1%	19.9%	
No education	30.0%	29.3%		39.0%	27.5%	
Completed education	47.6%	51.3%		43.9%	52.7%	
Employment status			0.881			<b>0.014</b>
Unemployed	64.8%	65.1%		71.5%	63.9%	
Employed	35.2%	34.9%		28.5%	36.1%	
Current sick leave			<b>0.000</b>			0.227
No	74.8%	66.4%		69.7%	65.8%	
Yes	25.2%	33.6%		30.3%	34.2%	

The number of patients in the groups of no-show, show-up, drop-out and completion is shown in the top of the columns, though the exact number in the different variables varies slightly because of missing information.

\*Significant *P*-values ( $P < 0.05$ ) for the variables are emphasized in bold.

comorbidity, GAF score, previous psychiatric/psychological treatment, prescribed antidepressants and substance abuse showed statistically significant differences between the two categories.

For drop-outs versus completers, age, school education, vocational/university education and employment status as well as substance abuse turned out to show a statistically significant difference between drop-outs and completers.

### Logistic regression

The results of the regression analysis of no-show patients versus show-up are presented in Table 4. In summary, three demographic variables and five clinical variables were significant. No-show was significantly predicted by: age below 25 years, only the compulsory 9 years of school education, no current sick leave, personality disorder, a GAF score either above 70 or below 40, no previous psychiatric/psychological treatment, no prescribed antidepressants, and substance abuse.

Table 5 shows the results of the regression analysis of drop-out versus treatment completion. In summary, four demographic variables and one clinical variable were significant. Drop-out was significantly predicted by: age below 45 years, only the compulsory 9 years of school education or up to 11 years of school education, no vocational/university education, unemployment, and substance abuse.

### Discussion

The aim of the study was to examine potential predictors of attendance for patients referred to psychotherapeutic treatment. In agreement with most of the existing literature on drop-out and no-show, the study confirms that certain demographic and clinical factors predict treatment attendance. A clear difference between prediction of no-show and prediction of drop-out was observed. No-show was predicted by both clinical and demographic variables, whereas drop-out was solely predicted by demographic

Table 3. Cross-tabulation for clinical variables: no-shows versus show-ups and drop-outs versus completers.

Clinical variables and categories	No-shows, n=668	Show-ups, n=1805	P*	Drop-outs, n=290	Completers, n=1515	P*
Primary diagnosis			<b>0.001</b>			0.102
Mood disorders	15.5%	21.2%		19.0%	21.6%	
Neurotic disorders	51.0%	48.0%		48.5%	47.9%	
Behavioural syndromes	18.0%	20.1%		17.9%	20.6%	
Disorders of personality	15.5%	10.7%		14.6%	10.0%	
Psychiatric comorbidity			<b>0.013</b>			0.935
Mood disorders	2.1%	3.6%		3.1%	3.7%	
Neurotic disorders	5.2%	7.5%		6.6%	7.7%	
Behavioural syndromes	1.2%	1.9%		1.7%	2.0%	
Disorders of personality	7.6%	9.4%		9.7%	9.4%	
No comorbidity diagnosis	83.8%	77.6%		79.0%	77.3%	
Duration of symptoms			0.604			0.342
<1/2 year	9.4%	9.8%		12.4%	9.3%	
1/2–2 years	27.9%	29.3%		26.6%	29.9%	
3–5 years	15.8%	17.0%		16.3%	17.1%	
>5 years	46.9%	43.9%		44.7%	43.7%	
GAF score			<b>0.000</b>			0.471
40–69	88.2%	94.1%		95.6%	93.9%	
>70	4.6%	2.0%		1.8%	2.0%	
<40	7.3%	3.8%		2.6%	4.1%	
Previous psych. treatment			<b>0.000</b>			0.697
No	34.4%	25.7%		26.7%	25.6%	
Yes	65.6%	74.3%		73.3%	74.4%	
Prescribed antidepressants			<b>0.000</b>			0.362
Yes	29.9%	39.3%		36.8%	39.7%	
No	70.1%	60.7%		63.2%	60.3%	
Substance abuse			<b>0.038</b>			<b>0.001</b>
No	94.1%	96.1%		92.6%	96.8%	
Yes	5.9%	3.9%		7.4%	3.2%	

The number of patients in the groups of no-show, show-up, drop-out and completion is shown in the top of the columns, though the exact number in the different variables varies slightly because of missing information.

\*Significant *P*-values ( $P < 0.05$ ) for the variables are emphasized in bold.

variables and substance abuse. This finding may reveal an important and relevant distinction between the two types of non-attendance.

### Who do not show up for treatment?

Three statistically significant demographic and five clinical predictors for no-show were found.

The results from the present study support the consistent finding that young people have adherence problems, e.g. missed appointments (31), drop-out (4, 6, 9) and no-show (32). Both the less stable personal and social situation of young patients and lack of experience with therapy may contribute to these problems (4). Furthermore, our study confirmed that patients with a short school education are most likely not to show up for treatment. Previous studies have shown that low levels of education are associated with various other problems and a low feeling of mastery, which might entail a reduced ability to structure your life and fully adhere to treatment (13). Finally, current sick leave predicted significantly higher treatment show-up frequency, maybe

because a sick leave better allows patients to take their time to comply with treatment as opposed to patients who remained in job.

The impact of the psychiatric diagnosis on not showing up is in agreement with other studies (10). The fact that patients with personality disorder had the highest rate of no-show, compared with other diagnostic groups may reflect that they tend to experience their pervasive dysfunctional mental patterns of behaviour, thoughts and feelings as ego-syntonic, and therefore may have an ambivalent attitude towards treatment.

In contrast to the existing literature (1, 28) psychiatric comorbidity was not associated with a greater risk for not showing up in the present study. This finding demands further investigation, but a tentative explanation will be that our centre provides several modalities of treatment, which may better encompass and suit more complex patients.

Patients rated as slightly impaired ( $GAF > 70$ ) or severely impaired ( $GAF < 40$ ) were more likely not to show up. This result suggests that there is a window for

Table 4. Logistic regression analysis for no-shows versus show-ups.

Demographic variables and categories	<i>n</i> *	Odds ratio	CI 95% (lower–upper)	<i>P</i> †
<b>Age</b>				
>45 years	248	1.000	(Reference)	
35–44 years	422	1.008	(0.675–1.506)	0.967
25–34 years	650	1.213	(0.813–1.771)	0.318
<25 years	511	1.512	(1.016–2.249)	<b>0.041</b>
<b>School education</b>				
High school	863	1.000	(Reference)	
Up to 11 years	634	1.415	(0.696–2.878)	0.338
9 years (compulsory)	295	1.497	(1.090–2.056)	<b>0.013</b>
Attending school now	39	1.119	(0.865–1.448)	0.391
<b>Current sick leave</b>				
Yes	575	1.000	(Reference)	
No	1256	1.466	(1.115–1.927)	<b>0.006</b>
<b>Clinical variables and categories</b>				
<i>n</i> *		Odds ratio	CI 95% (lower–upper)	<i>P</i> †
<b>Primary diagnosis</b>				
Mood disorders	361	1.000	(Reference)	
Neurotic disorders	930	1.119	(0.815–1.537)	0.487
Behavioural syndromes	335	0.860	(0.574–1.290)	0.467
Disorders of personality	205	1.829	(1.211–2.762)	<b>0.004</b>
<b>Psychiatric comorbidity</b>				
Mood disorders	60	1.000	(Reference)	
Neurotic disorders	129	1.360	(0.587–3.153)	0.473
Behavioural syndromes	32	0.731	(0.231–2.310)	0.593
Disorders of personality	157	1.308	(0.574–2.981)	0.523
No comorbidity diagnosis	1394	1.313	(0.622–2.770)	0.475
<b>GAF score</b>				
40–69	1715	1.000	(Reference)	
>70	37	2.018	(1.016–4.009)	<b>0.045</b>
<40	79	2.735	(1.651–4.529)	<b>0.000</b>
<b>Previous psych. treatment</b>				
Yes	1319	1.000	(reference)	
No	512	1.372	(1.077–1.748)	<b>0.011</b>
<b>Prescribed antidepressants</b>				
Yes	679	1.000	(Reference)	
No	1152	1.487	(1.152–1.918)	<b>0.002</b>
<b>Substance abuse</b>				
No	1744	1.000	(Reference)	
Yes	87	1.131	(1.843–2.956)	<b>0.014</b>

\*The number of cases in each category in the variable.

†Significant *P*-values (*P*<0.05) for the categories are emphasized in bold.

psychotherapeutic treatment equivalent to a GAF score in the interval 40–70. Previous studies have shown that mild conditions (i.e. high GAF scores) predict no-show (23), maybe because the patients have remitted during the waiting time before treatment (18). In the other end, a GAF score below 40 signifies severely impaired patients unable to function without support (30). Thus, such patients might have been too sick to show up and participate in treatment or the patients may even have been referred to an acute psychiatric department.

In contrast to the results of another Danish study (27), previous psychiatric or psychological treatment in

Table 5. Logistic regression analysis for drop-outs versus completers.

Demographic variables and categories	<i>n</i> *	Odds ratio	CI 95% (lower–upper)	<i>P</i> †
<b>Age</b>				
>45 years	235	1.000	(Reference)	
35–44 years	409	1.655	(1.010–2.713)	<b>0.046</b>
25–34 years	602	1.741	(1.070–2.831)	<b>0.026</b>
<25 years	432	1.908	(1.112–3.276)	<b>0.019</b>
<b>School education</b>				
High school	800	1.000	(Reference)	
Up to 11 years	593	1.595	(1.163–2.187)	<b>0.004</b>
9 years (compulsory)	257	1.933	(1.309–2.854)	<b>0.001</b>
Attending school now	28	1.835	(0.756–4.455)	0.180
<b>Vocational/university education</b>				
Student	316	1.000	(Reference)	
Completed education	868	1.166	(0.737–1.846)	0.511
No education	494	1.599	(1.043–2.452)	<b>0.031</b>
<b>Employment status</b>				
Employed	597	1.000	(Reference)	
Unemployed	1081	1.432	(1.049–1.955)	<b>0.024</b>
<b>Clinical variables and categories</b>				
<i>n</i> *		Odds ratio	CI 95% (lower–upper)	<i>P</i> †
<b>Substance abuse</b>				
No	1611	1.000	(Reference)	
Yes	67	2.704	(1.548–4.721)	<b>0.000</b>

\*The number of cases in each category in the variable.

†Significant *P*-values (*P*<0.05) for the categories are emphasized in bold.

our study was significantly associated with a higher rate of showing up for treatment. We think that previous treatment experiences lower the barrier for requesting and participating in a new treatment and that may explain the result.

It was surprising that patients on prescribed antidepressants were more likely to show up for treatment than non-medicated patients. Meta-analytic studies have shown that drop-out rates are higher for the combination of psychotherapy and medicine compared with single psychological treatments (20,21). In our study, medication started before and independently of the psychotherapeutic treatment. The results may imply that medication made it easier for the patients to endure the waiting time or it may reflect that compliance with the use of medication may be associated with compliance with other forms of treatment (24). Another possibility is that motivation for psychotherapy is higher because of insufficient effects of the medication.

Finally, our study confirms previous findings that patients with substance abuse are less likely to show-up (10, 27). It has been estimated that more than 50% of substance abusers have a comorbid mental disorder, but few seek help or want treatment as they are not prepared to change their abuse (33).

### ***Who drop out of treatment?***

The most consistent finding in previous studies is that age, marital status and socio-economic status is highly associated with the drop-out rate (3) and that low socio-economic status more than anything else differentiates drop-outs from completers as well as no-shows (29). Thus, it appears that demographic variables may be more important predictors of drop-out than variables related to the clinical status of the patients. Interestingly, in the present study four demographic variables but only one clinical variable were significant predictors for drop-out.

Drop-out patients were significantly more likely to be under the age of 45 years. We have already discussed various reasons why younger age may be associated with a higher rate of non-attendance.

Consistent with previous research (3, 29), the present study showed that having only 9 or up to 11 years of school education having no vocational/university education, and being unemployed were all factors associated with increased risk of dropping out. A nationwide Norwegian survey (13) found these factors to be highly correlated with each other and with other parameters such as low sense of mastery. Two points are of relevance here. First, psychotherapy is a talking cure and requires a certain level of verbal intelligence to be able to understand, reflect and benefit from the dialogue (34). Patients with no further education and patients with only 9 or up to 11 years of school education may be unaccustomed to self-reflection and may even lack the intellectual ability required for meta-cognitions. This may partly explain why they tend to give up therapy and should be further investigated through studies of the association of verbal intelligence with attendance and outcome. Second, as discussed by Dalgaard and colleagues (13), low education and unstable employment may be associated with less ability to manage and control your life, including the ability to be compliant with a treatment regime.

The only significant clinical predictor of drop-out was substance abuse. Substance abuse is consistently found to be associated with high risk for drop-out (9, 15) and it is generally agreed that patients with double diagnosis need to be treated for their addiction first as the substance abuse often hinders and complicates the treatment of the mental disorders (4, 33).

### ***Strategies to reduce no-show and drop-out***

Therapeutic clinics could make efforts to improve show-up for the referred patients, assuming they are in actual need of treatment. Several strategies may be used. One simple strategy is to keep in touch with and remind the patients about the treatment. The literature agrees that any kind of reminder is useful (35). Depending on

the target group, different technologies may be used. In general, studies have shown that telephone calls (27, 36) and letters (35) give a considerable higher adherence rate. For younger patients, the treatment unit could use e-mails (36) or text messages (37) to remind and inform the patients. Strategies may also focus on specific predictors of no-show. Patients may be informed about the risk of not showing up for first treatment and be informed about preventive steps like starting antidepressant medication and considering sick leave.

For drop-outs, the challenge is different as the problem may be caused by social deprivation (3, 4, 29). Patients who struggle with low education, unemployment, low income and low sense of mastery (13, 29) are perhaps more in need of social intervention than psychological intervention. Second, when psychological intervention is administered, it should be specifically tailored to the needs of this patient group. It has been suggested that patients at risk of drop-out should participate in motivational and psycho-educational groups before entering psychotherapy (38).

Seen from the perspective of reducing the socioeconomic costs and utilize the limited resources in the mental health services in an efficient way, another strategy to overcome both no-show and drop-out is to implement stepped care. In this framework, simpler and lower-cost interventions are tried first, before the patient progresses to more complex and costly intervention. It has been suggested that patients use Internet-based self-help programmes before entering psychotherapy (39).

### ***Limitations***

The study has a number of limitations. First, our study was accomplished in a naturalistic setting. None of the patients was selected specifically for this study, which contributed to an inhomogeneous patient sample. All diagnoses from mood disorders (F30) to personality disorders (F69) and comorbid conditions were included. This may partly explain if our non-attendance rates were high compared with specialized treatment units focusing only on one diagnostic group.

Second, our study included demographic and clinical data, but no detailed clinical assessment. Other studies have shown that waiting time (40), travel distance (31) and time of appointment (41) are significant predictors of attendance. In addition, no data on treatment type, satisfaction with treatment and the patients' subjective reasons for non-attendance were collected. Thus, if we had investigated data on accessibility of treatment, subjective reasons for non-attendance (2, 9, 23, 42) and detailed clinical assessments, we might have been able to make better predictions of no-show and drop-out.

Third, the findings may only be generalized to psychotherapeutic settings similar to the Scandinavian welfare system. In the Scandinavian welfare system, health treatment and sick leave exceeding 14 days is financed by the state and is without cost for the patients, and this may influence the number of patients not showing up or dropping out of treatment.

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- Morten Fenger, M.S.Psych., Stolpegaard Psychotherapy Centre, Mental Health Services, Capital Region of Denmark.  
Erik Lykke Mortensen, M.S.Psych., Institute of Public Health and Center for Healthy Aging, University of Copenhagen.  
Stig Poulsen, Ph.D., Department of Psychology, University of Copenhagen.  
Marianne Lau, M.D., D.Sci., Stolpegaard Psychotherapy Centre, Mental Health Services, Capital Region of Denmark.

## ERRATUM

The Early Online version of this article published online ahead of print on 21 Sep 2010 contained an error on page 6. In Table 4, Lines 33 and 34 should have read:

Previous psych. treatment

Yes	1319	1000	(Reference)	
No	512	1.372	(1.077–1.748)	<b>0.011</b>

And lines 38 and 39 should have read:

Substance abuse

No	1744	1.000	(Reference)	
Yes	87	1.131	(1.843–2.956)	<b>0.014</b>

This has been corrected for the current version. The author apologises for these errors.

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