

## Chapter 2

# Higher drop-out rate in non-native patients than in native patients in rehabilitation in The Netherlands

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## **Abstract**

### **Background**

Drop-out of a rehabilitation programme often occurs in patients with chronic non-specific low back pain of non-native origin. The exact drop-out rate is not known, however.

### **Purpose**

The objective of this study was to determine the difference in drop-out rate between native and non-native patients with chronic non-specific low back pain participating in a rehabilitation programme in The Netherlands.

### **Methods**

A retrospective study (N=529) in patient files was performed in two rehabilitation centres and two rehabilitation departments of general hospitals in The Netherlands. Patient files were checked for diagnosis, status of origin, sex, age and outcome, i.e. reason for finishing treatment. The difference in drop-out rate between patients of Dutch and non-Dutch origin was tested by  $\chi^2$  tests and logistic regression-analysis, controlling for age, gender, type of rehabilitation institute and phase of the rehabilitation programme.

### **Results**

Drop-out occurred among one fifth (18.7%) of the total patient population. Drop-out among patients of non-Dutch origin was twice as high as among native Dutch patients ( $p < 0.001$ ). In regression analyses drop-out was related to status of non-Dutch origin, treatment in a rehabilitation centre and the diagnostic phase of a rehabilitation programme.

### **Conclusion**

Patients of non-Dutch origin drop out considerably more frequently than native Dutch patients. Drop-out is higher in the diagnostic phase compared with the treatment phase and in rehabilitation centres compared with hospitals. Future research should clarify the reasons for the high drop-out rate in patients of non-native origin.

## Introduction

Chronic non-specific low back pain is a major health problem and a cause of disability, medical expenses and absenteeism (1). The primary aim of rehabilitation treatment is not to cure the low back pain or any underlying disease. Rehabilitation treatment of chronic low back pain is focused on teaching patients how to influence their complaints positively and to arrive at an insight into the relationship between the complaints and the context in which they occur (2).

A number of patients drop out prematurely from this type of rehabilitation programme. Drop-out in this study is defined as finishing of a rehabilitation programme because of non-medical reasons. Drop-out rates in rehabilitation programmes have been reported ranging from 9%-42% in pain rehabilitation (3-5), 22-55% in cardiac rehabilitation (6-9) and 45% in osteoarthritis rehabilitation (10). The clinical experience, in four participating institutes in this study, is that patients of non-Dutch origin drop out more often than native patients, but no exact data are known.

Most is known about drop-out rates of ethnic minority patients in mental healthcare programmes. In these two studies the drop-out rates have been reported as 29 and 52% in ethnic minority patients compared with 19 and 30% in native patients respectively (11;12). In healthcare programmes for drug addicts, the drop-out rate in patients of non-Dutch origin has been reported to be 60 compared with 50% in native Dutch patients (13).

More sick leave days (3;14;15), higher pain severity (15;16), being less active in sports (3), a lower age (15) and the idea that exercise did not help or aggravated pain (17) have been identified as predictors of drop-out in low back pain rehabilitation programmes. Drop-out from rehabilitation treatment in non-native patients is poorly understood. At the theoretical level, Andersen's Behavioural Model of Health Services (18) describes drop-out at three levels: patient, provider and system level. Barriers on all three levels influence the way care is provided and used by patients involved (19). In rehabilitation programmes, patients of non-native origin potentially experience more barriers than native patients, e.g. owing to a limited language proficiency, less proto-professionalism (i.e. the process whereby patients gain more information on causes and treatment of diseases and develop a view on cause and treatment of symptoms) and expectations that a rehabilitation programme is able to cure their disease (20). Although several reasons for

### *Drop-out rate*

drop-out have been described, drop-out among patients of non-native origin is still poorly understood.

This study aimed to determine the difference in drop-out rates between native and non-native patients with chronic non-specific low back pain participating in a rehabilitation programme in the Netherlands. This study was undertaken to check the clinical impression of a relatively high drop-out rate among patients of non-Dutch origin in rehabilitation programmes. This study quantifies the magnitude of the problem of drop-out among non-native patients, as an important step prior to seeking explanations for and solutions to this problem.

## **Methods**

### **Design**

This retrospective file-study was conducted in 529 patients who received rehabilitation between 2001 and 2004 in four participating institutes: two rehabilitation centres and two rehabilitation departments of general hospitals. These four institutes were selected because they all were situated in (the surroundings of) one city. This offered the opportunity to compose a group of institutes that was as similar as possible regarding the composition of the patient population.

### **Patients**

Patients were recruited from the four participating outpatient rehabilitation departments. All patients that have been treated in the four departments for back pain complaints were checked for inclusion according to the inclusion criteria. Patient files were checked for diagnosis, status of origin, sex, age and outcome, that is reason for finishing treatment.

The following inclusion criterion was applied: Chronic low back pain that existed for longer than 12 weeks (21) and had not been ascribed to a specific pathology. The low back is the body region between the lower ribs and the lower buttock fold. The status of non-Dutch origin was defined as: (a) born outside The Netherlands and at least one parent born in the same country; or (b) born in The Netherlands and both parents born outside The Netherlands. Non-Dutch origin was coded as: (1) Surinam or Antillean origin, (2) Turkish origin, (3) Moroccan origin or, (4) other non-Dutch origins.

**Outcome**

Finishing the rehabilitation programme was coded as owing to: medical reasons (e.g. aims of rehabilitation accomplished), non-medical reasons, (e.g. patient withdraws from rehabilitation as his/her expectations were not met), external reasons (e.g. lack of transport possibilities) or non-applicable (e.g. rehabilitation was not yet completed, or no reason of completion was written down). Drop-out was defined as a finished rehabilitation programme because of non-medical reasons.

Drop-out can occur in the diagnostic phase or the treatment phase. The diagnostic phase is defined as the phase in which the rehabilitation physician performed diagnostic examinations, checked the received information from the referring physician and radiographs etc. to exclude a somatic cause of the low back pain. In the treatment phase the rehabilitation team containing physical therapists, psychologists, occupational therapists and social workers under responsibility of the rehabilitation physician treated the patient.

**Statistical analysis**

The difference in drop-out rate (non-medical vs. medical and external reasons) between native Dutch patients and patients of non-Dutch origin was analysed using the Chi-square tests for dichotomous variables. Logistic regression analysis was used to describe the relationship between drop-out as dependent variable and status of origin, age, sex, type of institute and phase of rehabilitation as independent variables. These variables were entered into a forward stepwise logistic regression analysis. Significance was set at *P* value less than 0.05. The Statistical Package for Social Sciences (SPSS Inc., Chicago, Illinois, USA) version 15.0 was used to perform statistical analyses.

**Ethics**

The study was approved by the Medical Ethics Committee of the Slotervaart hospital, the Jan van Breemen Institute and the Boven-IJ hospital.

**Results****Participants**

Five hundred and twenty-nine patients met the inclusion criteria. Patients' characteristics are given in Table 1. The distribution between native Dutch patients and patients of non-Dutch origin was 65 versus 35%. The sample in this study contained 35% of non-native patients. The general Dutch population contains 20% of non-native citizens. However, the

### Drop-out rate

sample in this study compares well to cities, where most non-native people live. The percentages of non-native citizens in the locations of the study varied between 25% and 49%. Patients of non-Dutch origin in this study consisted of patients of Surinam and Antillean origin (4%), patients of Turkish origin (8%), patients of Moroccan origin (10%), and patients of various non-Dutch origins (13%).

		Rehabilitation centres N=408	Hospitals N=121	Total group N=529
Sex:	Female	230 (56.4%)	74 (61.2%)	304 (57.5%)
	Male	178 (43.6%)	47 (38.8%)	225 (42.5%)
Age:	<20	4 (1%)	0 (0%)	4 (0.8%)
	20-64	366 (89.7%)	109 (90.1%)	475 (89.8%)
	>65	38 (9.3%)	12 (9.9%)	50 (9.4%)
Origin:	Dutch	259 (63.5%)	85 (70.2%)	344 (65%)
	Non-Dutch origin	149 (36.5%)	36 (29.8%)	185 (35%)

### Outcome

Table 2 describes the frequency of finishing rehabilitation treatment for four different reasons. One fifth (18.7%) of all patients dropped out. Drop-out was twice as high ( $\chi^2 = 20,607$ ,  $df = 1$ ,  $p < 0.001$ ) in patients of non-Dutch origin (28.1%) as in native Dutch patients (13.7%). Drop-out in patients of Turkish origin was 32% (out of 44) and 33% (out of 51) in patients of Moroccan origin. Drop-out in patients of Surinam and Antillean origin was 20% (out of 20) and 24% (out of 70) in patients of other non-Dutch origins.

Drop-out rates in the different institutions and phases of treatment are given in Table 3. Drop-out was significantly higher ( $\chi^2 = 11,727$ ,  $df = 1$ ,  $p < 0.001$ ) in rehabilitation centres (21.6%) than in hospitals (9.1%). Drop-out was significantly higher ( $\chi^2 = 16,051$ ,  $df = 1$ ,  $p < 0.001$ ) in the diagnostic phase (26.4%) than in the treatment phase (11.7%) of the rehabilitation programme.

In rehabilitations centres the drop-out in patients of non-Dutch origin was 32.2% and in hospitals 11.1%. In rehabilitation centres 48% (out of 27) patients of Turkish origin, 43% (out of 15) patients of Moroccan origin, 33% (out of 49) patients from other non-Dutch origins and 24% (out of 17) patients of Surinam or Antillean origin were dropped out. The drop-out rate in native Dutch patients was 16.7% (out of 40).

In hospitals drop-out in patients of Moroccan origin was 50% (out of 4), Turkish origin 8% (out of 13), native Dutch patients 8% (out of 84) and in patients of other non-Dutch origins 7% (out of 15). Among patients of Surinam or Antillean origin no drop-out occurred.

**Table 2: Reasons for finishing treatment per institution**

	Rehabilitation centres			Hospitals		
	Dutch N=259	Non-Dutch N=149	Total N=408	Dutch N=85	Non-Dutch N=36	Total N=121
Medical	193 (74.5%)	79 (53%)	272 (66.6%)	75 (88.2%)	30 (83.3%)	105 (86.8%)
Non-Medical (Drop-out)	40 (15.5%)	48 (32.2%)	88 (21.6%)	7 (8.2%)	4 (11.1%)	11 (9.1%)
External	7 (2.7%)	1 (0.7%)	8 (2.0%)	2 (2.4%)	0 (0%)	2 (1.6%)
Non-applicable	19 (7.3%)	21 (14.1%)	40 (9.8%)	1 (1.2%)	2 (5.6%)	3 (2.5%)

**Table 3: Drop-out rate in different institutions and phases of treatment**

	Rehabilitation centres			Hospitals		
	Dutch N=259	Non-Dutch N=149	Total N=408	Dutch N=85	Non-Dutch N=36	Total N=121
Diagnostic phase	32 (12.3%)	39 (26.2%)	71 (17.4%)	2 (2.3%)	2 (5.6%)	4 (3.3%)
Treatment phase	8 (3.1%)	9 (6%)	17 (4.2%)	5 (5.9%)	2 (5.6%)	7 (5.8%)
Total	40 (15.4%)	48 (32.2%)	88 (21.6%)	7 (8.2%)	4 (11.1%)	11 (9.1%)

### Multivariate analysis of drop-out

Results of the logistic regression analysis to predict drop-out are shown in Table 4. The results indicate that drop-out is predicted by non-Dutch origin, treatment in a rehabilitation centre and rehabilitation in the diagnostic phase. The significant difference in drop-out rates between patients of Dutch and non-Dutch origin, between rehabilitation centres and hospitals, and between the diagnostic phase and the treatment phase of the rehabilitation programme detected in the univariate analysis remained significant in the multivariate analysis. In the multivariate analysis, non-Dutch origin was the strongest predictor of drop-out. To verify whether geographic region influenced the results, this variable was added in the multivariate analysis. However, geographic region was not a predictor of drop-out.

**Table 4: Logistic regression analysis of drop-out**

	B	S.E.	Wald	Df	Sig.	Exp (B)	95.0% C.I. for EXP (B)	
							Lower	Upper
Gender	0.131	0.241	0.296	1	0.587	1.140	0.710	1.830
Age-group	-0.651	0.454	2.052	1	0.152	0.522	0.214	1.271
Type of institution	-0.819	0.359	5.212	1	0.022	0.441	0.218	0.891
Status of origin	0.890	0.243	3.408	1	0.000	2.435	1.512	3.921
Phase of treatment	-0.759	0.273	7.733	1	0.005	0.468	0.274	0.799
Constant	0.523	1.245	0.176	1	0.675	1.686		

## Discussion

The aim of this study was to establish the difference in drop-out rate between native and non-native patients with chronic non-specific low back pain participating in a rehabilitation programme in The Netherlands. It was found that drop-out in patients of Non-Dutch origin of rehabilitation programmes was twice as high as in native Dutch patients. This is a disturbing finding, which is a reason for concern in clinical practice. Drop-out was found to be predicted by status of non-Dutch origin, treatment in a rehabilitation centre and the diagnostic phase of rehabilitation. This means that patients of non-Dutch origin in a rehabilitation centre during the diagnostic phase of treatment have the highest risk of dropping out from a rehabilitation programme. Previous studies did not include status of origin, type of rehabilitation institute and phase of the rehabilitation programme as variables of drop-out in analyses. Therefore this study is the first to investigate the relationship between these variables and drop-out.

An overall drop-out rate of 18.7% in this study is consistent with those of previous studies in patients with (low back) pain, which found drop-out rates ranging from 10%-42% (3-5). The significant difference in drop-out rate between native Dutch patients (13.7%) and patients of non-Dutch origin (28.1%) is consistent with a study conducted in mental healthcare. In this study the drop-out rate was significantly higher in ethnic minority patients (52%) compared with native patients (30%)(12).

One study, conducted in patients who participated in a cardiac rehabilitation programme, identified unemployment or searching for employment as a predictor of drop-out (7). As patients of non-Dutch origin have a higher unemployment rate than native Dutch patients (22), this may be an explanation of a higher drop-out rate in patients of non-Dutch origin. Whether other potential barriers for example a limited language proficiency (20), might

explain the higher drop-out in patients of non-Dutch origin should be addressed in a future study.

Being enrolled in a rehabilitation programme in a rehabilitation centre was a predictor for drop-out. A potential reason is that because of the diagnostic evaluation procedure at the start of the rehabilitation programme conducted by a rehabilitation physician and a psychologist, which is a standard procedure in rehabilitation centres, fewer patients stay enrolled in the rehabilitation programme. Patients enrolled in this diagnostic procedure potentially are confronted with inadequate pain coping being the main factor maintaining their symptoms, what could be the reason for drop-out.

The diagnostic phase of the rehabilitation programme was also found to be a predictor of drop-out. A potential reason is that in this phase different expectations between patients and physicians regarding the aim of treatment are a source of tension (20;23;24). Patients who aim for pain relief will be disappointed when it becomes apparent that the rehabilitation programme aims to teach patients to cope with their symptoms instead of aiming for pain relief.

A strength of this study is that it has been conducted at four different rehabilitation institutes. This contributed to the generalizability of the findings. A limitation is that our results of drop-out in patients enrolled in low back pain rehabilitation programmes can not be generalized to drop-out of rehabilitation programmes for other conditions.

## **Conclusion**

Low back pain patients of non-Dutch origin drop out considerably more frequently than native Dutch patients. Drop-out is higher in the diagnostic phase compared with the treatment phase and in rehabilitation centres compared with hospitals. Future research should clarify the reasons for the high drop-out rate in patients of non-native origin.

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