The Problem of Readmission with Respect to Occupational Factors

Course and Predictive Influences after 5 years*

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Summary. In this study the course of Readmission after one, 2.5 and 5 years was examined at a sample of 258 first admitted psychiatric patients of different diagnostic groups. In the analysis occupational, soziodemographic and clinical parameters of these patients were related to the readmission after 5 years and studied if these parameters allow a predictive statement.

It was shown that 40%–60% (dependent of diagnoses) of the patients were readmitted in a period of 5 years. The course of the readmission also varied in the different diagnostic groups. The most striking result was the rate of readmission of the schizophrenic psychoses which was at the time of the 1 year catamnesis below average after the 2.5 year analysis however above average. Beside these findings occupational and clinical predictors were identified in all diagnostic groups with exception of the schizophrenic psychoses group. The results are discussed and attention is put on possible consequences to prevent rehospitalization.

Key words: Psychiatric patients – Readmission – Occupational factors – Follow-up –Outcome prediction

1. Formulation of the Problem

The subject of readmission has been gaining importance with the growing realization that the increased

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use of psychoactive drugs has not only brought about shorter hospital stays in psychiatric clinics, but more frequent stays (Pietzcker 1978; Möller et al. 1982; Müller 1982; Huber et al. 1983).

The discussion concerning readmission of psychiatric patients to inpatient care has in the past centered around clinical variables such as diagnosis and the severity of the psychopathological clinical picture (Viesselman et al. 1975; Jansen and Nickles 1973). The most important predictor variable became known as "number of previous hospital stays" (Rosenblatt and Mayer 1974). This result is probably related to the fact that many investigations were set up as retrospective studies. Whether or not occupational variables have an influence on the readmission rate has not yet been proven. In the few studies which have included the occupational situation of the patient in the analysis it has been suggested, among other results, that readmitted patients often do not work at all (Peretti 1974; Lorei and Gurel 1973; Gurel and Lorei 1972). Similarly, Watts and Bennett (1977) demonstrated an unstable prehospital occupational situation.

Other studies with chronically ill patients have also shown a clear correlation between a negative record of employment and a tendency toward readmission.

However, this can be explained by the fact that frequent hospital stays make continual employment almost impossible (Serban and Gidynskie 1974). In studies which considered variables such as occupational training and readmission, no relationship was found (Wessler and Iven 1970; Franklin et al. 1975). For the present study two basic requirements were derived from these results in order to answer the

question whether or not occupational variables influence readmission:

1. The problem should be studied on a sample of first admission patients, i.e., patients who had been working until shortly before their hospital stay.
2. The problem should possess a prospective character, but at the same time certain prehospital employment career traits should be recorded — traits which may prove to be possible predictors in a follow-up study.

2. Methods and Procedures

Of the 258 first admission patients of the Guenzburg Regional Hospital (Dept. of Psychiatry II of the University of Ulm) 39 patients were readmitted within a year after discharge. In addition to the interview at the time of their first discharge, 33 of these readmitted patients were questioned again in a follow-up examination 1 year after the first discharge. This investigation was carried out using a self-designed, structured interview.

A second analysis was carried out 2.5 years after discharge. At this time, however, there was no accompanying interviewing. Instead information concerning further hospital stays was obtained through the continuing documentation of readmission in the Guenzburg Regional Hospital as well as from the hospital records of the patients. Of the 65 patients who had been readmitted within the 2.5 years (25% of the total sample), data were available from both the discharge interview and the 1-year follow-up.

Another interview was carried out for the 5-year follow-up. At this point 113 patients had been readmitted (44% of the total sample) and of these 105 were questioned. Data which corresponds to both the prehospital time period and the following first admission, included, above all, variables of the occupational field such as: occupational training, occupational status, duration of employment, net income, unemployment, and a prehospital integration index. The variables that were taken into account to form the occupational integration index consisted of: actual time spent working (or respectively, not working), changes in qualifications, status of employment, and number of employments.

Furthermore, clinical variables were considered such as discharge diagnosis, prehospital course of illness, psychopathological findings, duration of hospital stay, and the legal grounds of the hospitalization. Similarly, sociodemographic variables such as age, sex, marital status, education, and social class were also considered in the analysis. Variables which applied in particular to the 1-year follow-up period

were the following: difficulties at the time of discharge, problems at work, date of returning to work, the patient's subjective judgement of his/her achievement behavior at work, and an index (like the prehospital occupational integration index) which evaluated occupational reintegration after first admission.

Results

3.1. Distribution and Trends

One of the most important results was that the readmission rate 5 years after discharge was 44% of the total sample. From the 258 patients who were questioned in 1979, 113 of them were readmitted at least once — and that was without consideration of the fact that 10% of the total sample had died during this period. The frequency of readmission resulted in: 46% with one readmission, 28% with two readmissions, 12% with three readmissions, and 14% with four or more readmissions.

The duration of the first readmission for 39% was in the range of 1 to 4 weeks. For 33% of the patients it lasted as long as 3 months, and for 28% a readmission of over 3 months was necessary. The time period in which these readmissions took place was the year following discharge for 37%, leaving 63% who were readmitted after the 1-year follow-up. The authority in charge of prescribing hospitalization was a family doctor for 43% of the patients, and a private practice psychiatrist for 26%. Three-fourths of the patients agreed to readmission and were voluntarily committed, whereas a fourth of the patients were readmitted according to the federal committal law.[1]

When observing the distribution of readmissions with respect to specific diagnoses, the following differences were observed (Table 1). The group of schizophrenic psychoses had, with 58%, the highest proportion of readmissions, which was followed by the organic psychiatric illnesses, and the affective psychoses where more than every second patient was readmitted (52%). Clearly lower rates were found in the groups of neurotic/psychosomatic illnesses, and the chemically dependent (i.e., alcohol- and drug-dependent), which demonstrated a readmission rate of under 40% (39.5% and 39%, respectively).

In examining the developments which occurred prior to the 5-year follow-up, for the total group as well as each diagnostic group, quite considerable differences in readmission rates were evident (Table 2). At the time of the 1-year follow-up, the two diagnos-

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[1] This law provides for committal of a psychiatric patient against his will when a judge declares a patient's behavior as legally insane after hearing testimony from a consulting psychiatrist

Table 1. Distribution of the discharge diagnosis for readmissions after 5 years

Distribution of the discharge diagnosis	Total population		Readmission after 5 years	
	N	% of the total	N	% of each group
Organic psychiatric illnesses	21	8.1	11	52.4
Schizophrenic psychoses	33	12.8	19	57.6
Affective psychoses	23	8.9	12	52.2
Neurotic or psychosomatic illnesses	81	31.4	32	39.5
Chemical dependency	100	38.7	39	39.0
Total	258	100.0%	113	43.8%

Table 2. Distribution of the discharge diagnosis for readmissions after 1 year, 2.5 years, and 5 years

Distribution of the discharge diagnosis	Total population		Readmissions after 1 year		Readmissions after 2.5 years		Readmissions after 5 years	
	N	% of the total	N	% of each group	N	% of each group	N	% of each group
Organic psychiatric illnesses	21	8.1	6	28.5	7	33.3	11	52.4
Schizophrenic psychoses	33	12.8	4	12.1	14	42.4	19	57.6
Affective psychoses	23	8.9	5	21.7	6	26.1	12	52.2
Neurotic or psychosomatic illnesses	81	31.4	10	12.3	14	17.3	32	39.5
Chemical dependency	100	38.7	14	14.0	24	24.0	39	39.0
Total	258	100%	39	15.1%	65	25.2%	113	43.8%

Table 3. Predictors of readmission (5-year follow-up)

Predictors	Diagnosis group					Total
	Organic psychiatric illnesses	Schizo-phrenic psychoses	Affective psychoses	Neurotic/psycho-somatic illnesses	Chemical depen-dency	
Employment/unemployment	**		**		**	***
Duration of employment			**			**
Occupational training	*			**		N.S.
Prehospital occupational index						N.S.
Age			***		*	**
Marital status		*	*			*
Psychopathological symptomatology (at first admission)				*	*	**
Duration of the first hospitalization			*	***		**
Subjective judgement of achievement behavior				*		***
Difficulties at discharge	**		*		*	***
Date of returning to work		*		**		***
Index (1-year follow-up)	**		*	***	**	***
Psychopathological symptomatology (1-year follow-up)	*	**		***	***	***

Mann-Whitney or χ^2 test (one-sided)

$* = P \leqslant 0.10$; $** = P \leqslant 0.05$; $*** = P \leqslant 0.01$; N.S. = not significant

tic groups organic psychiatric illnesses and affective psychoses had the highest readmission rates. This was again the case for the organic psychiatric illnesses after 2.5 years, however the most striking result was the increase of 30% in the group of schizophrenic psychoses, which took a leading position of more than 42% readmissions. At this time as well as the 1-year follow-up, the group of the neurotic or

psychosomatic illnesses was under represented. The period between the 2.5 year up-date and the 5-year follow-up was characterized by the rise in readmissions for the group of the organic psychiatric illnesses, the affective psychoses, and the neurotic and psychosomatic illnesses, all of which rose by 20% or more. However, the remaining two groups (the schizophrenic psychoses and the chemically dependent) were also marked by a rise in readmission rates of 15% each.

3.2. Predictive Influences on Readmission at the Time of the 5-Year Follow-Up

As a second step, the entire group of first admission patients were analyzed with respect to the predictive value of prehospital and firstadmission variables on the possibility of a following readmission (Table 3). Variables from the occupational field took particular importance in the analysis. Readmitted patients were more likely to be out of a job at the time of the readmission, to a significant degree ($P = 0.0003$). Also, the duration of prehospital employment was shorter in this subgroup ($P = 0.03$; $18.3:20.8$ years).

At the time of their first stay in the psychiatric clinic, the readmitted patients expressed an elevated psychopathological symptomatology ($P = 0.05$), had a longer hospital stay (12 to 10 weeks; $P = 0.02$), and judged their achievement behavior at the time of discharge as significantly worse ($P = 0.006$) compared to the other patients. Using demographic traits to typify this subgroup revealed patients who were somewhat younger (29.1 to 30.8 years $P = 0.05$) and often unmarried. Traits such as sex, social class, or education had no influence. In order to further describe these readmitted patients, several of the 1-year follow-up traits were applied. Consequently, it was shown that these patients experienced difficulties at the time of discharge ($P = 0.01$). These difficulties primarily dealt with work and/or trying to find a posi-

Table 4. Relationship between formal occupational reintegration (at 1-year follow-up) and readmission (at 5-year follow-up)

Index of formal occupational reintegration		Nonreadmitted $N = 101$	Readmitted $N = 101$
Good index	(Cat. 1 + 2)	55%	33%
	N	(56)	(33)
Average index	(Cat. 3 + 4)	24%	24%
	N	(24)	(24)
Poor index	(Cat. 5 + 6)	21%	44%
	N	(21)	(44)

Mann-Whitney $z = -3.9$
$P = 0.0001$

tion. Difficulties in dealing with the immediate social environment (i.e., friends, acquaintances, colleagues) were also mentioned. Furthermore, it took longer for these patients to return to work after discharge ($P = 0.01$; 6 to10 weeks). The most important result at this time however was (Table 4), that the readmitted patients were substantially worse in occupational reintegration ($P = 0.000$). In addition they demonstrated an elevated psychopathological symptomatology ($P = 0.000$).

3.3. Diagnosis-specific evaluation

Since differences in the frequency of admissions arose within the entire distribution, and it was not to be expected that all of the results found in the group as a whole would be reproduced in each diagnostic group, a diagnosis-specific analysis was carried out.

The group of readmitted patients with organic psychiatric illness was, at the time of readmission, more likely to be unemployed ($P = 0.03$). In contrast to the hypothesis, these patients were characterized by better education and occupational training ($P = 0.04$). These patients commonly reported difficulties at discharge ($P = 0.03$). At the 1-year follow-up, the readmissions in this group were poor in social ($P = 0.03$) and occupational ($P = 0.10$) reintegration, and tended towards an elevated psychopathological symptomatology.

In the case of the schizophrenic psychoses, it was not possible to find any prehospital variables from the occupational field which associated with readmission. In fact the tendency towards better education and occupational training, as well as the negation of any prehospital problems at work all argued against the assumption of any influence. On the other hand, the clinical variable legal grounds of admission became significant ($P = 0.07$). Readmitted schizophrenic patients were, accordingly, admitted to hospital in their first stay via committal law in more cases. Nevertheless, these patients needed more time after discharge until returning to work ($P = 0.06$), and after a year demonstrated an elevated psychopathological symptomatology ($P = 0.01$).

With the group of affective psychoses, occupational variables were significant. The readmitted patients in this group were more commonly unemployed at the time of readmission. Likewise, the duration of prehospital employment was shorter ($P = 0.01$). Consequently, these patients were younger on average ($P = 0.006$) and more likely to be single ($P = 0.07$). There was a tendency in this group towards a longer first hospital stay, and reports of difficulties at discharge ($P = 0.07$). At the 1-year follow-up these patients tended toward poor occupational reintegra-

tion ($P = 0.10$) and expressed a lower level of job-satisfaction ($P = 0.03$).

The group of neuroses also showed signs that occupational variables had influence. The readmitted patients in this group revealed poorer education and occupational training ($P = 0.05$ and 0.09, respectively). Following first admission, an elevated psychopathological symptomatology ($P = 0.07$) was evident. Correspondingly, the readmitted patients in this group had a longer prehospital course of illness ($P = 0.04$) as well as a longer hospital stay ($P = 0.001$). At discharge they judged their achievement behavior more negatively ($P = 0.09$), and were substantially worse in occupational reintegration a year later ($P = 0.01$).

The readmitted patients in the chemical dependency group demonstrated a higher rate of unemployment at the time of readmission ($P = 0.02$). The age of the patients tended to be younger ($P = 0.10$), and they expressed an elevated psychopathological symptomatology at readmission. They reported difficulties at discharge ($P = 0.08$), and at the 1-year follow-up showed poor occupational reintegration ($P = 0.04$). In addition, the psychopathological findings were elevated at this time ($P = 0.001$).

Discussion and Conclusions

An important primary result of this study was that a large number of the patient in all diagnosis groups were readmitted within the 5 years after discharge (40%–58%). As expected, the groups with the highest rates of readmission were the schizophrenic illnesses, followed by the organic psychiatric illnesses, and the affective psychoses. These results coincide in part with other studies (Viesselman et al. 1975; Gorwitz et al. 1966), in which schizophrenic patients also had the highest readmission rate. In these other studies, however, schizophrenia was followed by the diagnosis alcoholism. In order to adequately evaluate to what extent the readmission rates of our sample portray a representative picture, a 5-year follow-up of a comparative sample of first admission patients would be necessary. Since such a sample does not exist, any comparisons with other studies are by definition somewhat insufficient. Thus, Gaebel and Pietzcker (1984) presented a distribution for their readmitted patients at a 1-year follow-up which is notably elevated in comparison to our 1-year follow-up. In the following diagnoses the differences are clearly depicted: schizophrenia (Gaebel and Pietzcker 39%, Guenzburg 12%); neuroses (Gaebel and Pietzcker 26%, Guenzburg 12%); and chemical de-
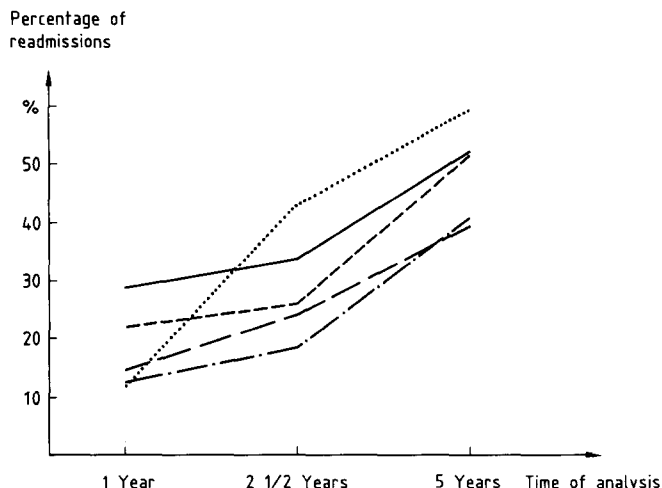
Percentage of readmissions

Fig. 1. Percentage of readmission (according to diagnostic groups) after 1 year, after 2.5 years, and after 5 years. —— organic psychiatric illnesses; ······· schizophrenic illnesses; ———— affective psychosis; ·—·—· neurotic disturbances; ▬▬▬ chemical dependency

pendency (Gaebel and Pietzcker 30%, Guenzburg 14%). The reason for the elevated readmission rates from Gaebel and Pietzcker is probably due to the repeat hospitalization patients included in their sample, whereas our sample consisted of only first admission patients.

There was a sharp increase in readmissions in the group of schizophrenic illnesses (Fig. 1), which can be largely explained by the fact that this diagnostic group had the lowest readmission rate at the time of the 1-year follow-up, against our expectations. Undoubtedly this was related to the two following realities: not only did the sample consist exclusively of first admission patients, these patients received a great deal of out-patient care after discharge, in which almost 90% of all schizophrenic patients were undergoing drug therapy.

There were also elevated readmissions in the groups of organic psychiatric illnesses, affective psychoses, and neurotic psychosomatic illnesses after the 2.5 year analysis. A possible interpretation for these findings is the fact (as previously depicted, compare with Neumann et al. 1986) that in the diagnostic groups of organic psychiatric illnesses, schizophrenic illnesses, and the affective psychoses, the number of patients who still took medication (neuroleptics and thymoleptics) had practically been reduced by half (in comparison to discharge). In the group of neurotic disturbances, a dramatic reduction in the use of neuroleptic drugs was also paralleled by a drastic increase in the use of tranquilizers. However, these results applied to both nonreadmitted and

readmitted patients. Therefore, the elevation in readmissions cannot be explained by a decrease in the use of medication.

In a further attempt to interpret our results, we studied the aftercare utilization of the patients. Here we observed a clear decline in the use of aftercare after the 1-year follow-up for the entire group (10% – 30%). This included almost all diagnostic groups with the exception of the chemically dependent who, even after discharge, utilized mental health care to a very slight degree (Bell et al. 1986). If one compares the use of outpatient services separately for the readmitted patients, it becomes evident that these patients had more regular contact with the various aftercare services than the nonreadmitted patients. Therefore an increased readmission rate cannot be avoided by simply increasing the number of, or the utilization of, aftercare services. In this context, a qualitative improvement or structural change in the existing aftercare services is called for. With the results we obtained from the study of predictor variables, we have attempted to answer the question concerning the content of such improvements or changes.

For the entire group of readmitted patients, variables from the occupational and medical fields, as well as several sociodemographic variables proved to be of importance. Above all, the traits of unemployment and short duration of prehospital employment were relevant. Correspondingly, readmitted patients were more likely to be young and single. In addition, the psychopathological symptomatology and the duration of the first hospitalization also had an influence on readmission. At the time of the 1-year follow-up, all of these predictors were significant. The group entity of the readmitted patients had taken shape at this time much more clearly (in reference to the 5-year follow-up).

In order to propose specific measures which could prevent a readmission, the diagnosis-specific aspects are also worthy of consideration. When related to the prehospital employed time period variables appeared (e.g., the traits of employment/unemployment, duration of employment, and occupational training) which can be used as predictors for readmission in the diagnostic groups organic psychiatric illness, affective psychoses, chemically dependency, and with limitations, in the group of neuroses. The sociodemographic variables such as age and marital status were particularly relevant for the affective psychoses. The clinical variables such as the psychopathological findings and the duration of the first hospitalization had especially significant results in the group of neurotic illnesses. In examining those variables which were found to be related to readmission at the 1-year follow-up, it became apparent after the 5-year analysis that most of

these variables possess a modest to substantial degree of predictive value in all diagnosis groups.

As a positive conclusion to this analysis, it can be said that in all diagnosis groups – with the exception of the schizophrenic illnesses – predictors from the occupational field could be identified. As a consequence, assistance in occupational rehabilitation is indicated, for example in the form of sociotherapeutic measures. Qualitative improvements or structural changes in aftercare services should also be considered in this particular context.

As a negative conclusion, it became apparent – at least in this study – that virtually no predictors could be determined in the group of the schizophrenic illnesses (either in the occupational or the medical fields) which would allow specific predictions concerning the consequences which may be met. This is all the more regrettable, since this group in particular accounts for the highest readmission rate after 5 years.

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