

Chapter 11

Social deprivation and psychiatric service use for different diagnostic groups

Jaap Peen, Jack Dekker
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Abstract

Recent research has shown that the relationship between social deprivation and admission rates varies according to diagnosis. We have replicated a study of this kind. Furthermore, in addition to admission rates, we also look at variations in length of stay and the proportion of readmitted patients.

Psychiatric admission data for the 79 Amsterdam neighbourhoods was obtained from the City Psychiatric Register. This data covered all the admissions between 1992 and 1995 of people from Amsterdam aged 19 and older, with the exception of short-term crisis admissions to the Crisis Centre. These admissions were divided into six diagnostic groups. The admission rates, the average length of stay and the proportion of patients readmitted were compared to the level of socio-economic deprivation in the area concerned, a factor which was determined using factor analysis.

Admission rates for schizophrenia, other psychoses and neurosis disorders showed a significant relation with the level of socioeconomic deprivation. Admission rates for affective disorders, organic psychoses and personality disorders showed no significant relation with deprivation. The findings on average length of stay and proportion of readmitted patients showed no clear relation with deprivation according to diagnosis category.

As was found in previous studies, the relationship with socio-economic deprivation varies according to diagnosis. The average length of stay and the risk of readmission, given the diagnosis, do not vary according to level of deprivation.

11.1 Introduction

Generally speaking, more people are admitted to psychiatric institutions from socially-deprived areas than from prosperous neighbourhoods (Faris & Dunham, 1939; Thornicroft, 1991; Harrison et al., 1995; Boardman et al., 1997; Dekker et al., 1997). However, this relationship with indicators of social deprivation is not found in all separate diagnosis groups. In their review, Klusmann and Angermeyer (1987) report that there is generally a strong positive correlation between admission rates

for schizophrenia and neighbourhood levels of social deprivation. In recent studies, fairly strong positive links were found between rates for schizophrenia and social deprivation (Thornicroft et al., 1993; Harrison et al., 1995; Boardman et al., 1997). Strong positive links have also often been found between dependence-related disorders and social deprivation (Klusmann & Angermeyer, 1987; Boardman et al., 1997), with the exception of Harrison et al. (1995). The few studies of rates for organic brain syndromes showed a positive relationship with social deprivation (Levy & Rowitz, 1973; Harrison et al., 1995).

According to Klusmann and Angermeyer (1987), the picture is unclear with respect to the cluster of neurotic disorders. Klusmann and Angermeyer (1987) and Tansella et al. (1993) found no relation with social deprivation; Harrison et al. (1995) found a slightly negative tendency, whereas Boardman et al. (1997) found a positive correlation. For personality disorders, Harrison et al. (1995) found no relation with indicators of social deprivation, while Boardman et al. (1997) found a positive link. In their review, Klusmann and Angermeyer (1987) report that affective disorders are often positively related to social deprivation, a finding which was confirmed in Boardman's study (1997). However, Klusmann and Angermeyer (1987) found no relation of this kind. Giggs and Cooper's (1987) findings with respect to the subgroup of manic depression showed a negative relation with deprivation while Harrison et al. (1995) found no significant relation.

One of the aims of the studies described above was to track down indicators which indirectly expressed the need for psychiatric help among the population. These indicators serve as a rational basis for service planning. In general, admission rates only provide a limited picture of the real clinical need among the population. First of all, a large proportion of the people who are mentally ill are never treated (Link & Dohrenwend, 1980). In addition, admission rates are in part determined by the available capacity: supply limits demand. Harrison et al. (1995) concluded that rates for psychotic disorders constitute the best indication of need, given the fact that their severity means that they are influenced least by available bed capacity. In their view, admission rates for non-psychotic disorders are, on the other hand, indeed influenced by available capacity.

Another service-use variable which seems to be correlated to social indicators is length of stay. The findings concerning the relationship between length of stay and social deprivation are not unequivocal. It has been found that length of stay was negatively correlated to social deprivation (Dekker et al., 1997). Cotgrove et al. (1992) and Tansella et al. (1993) did not find a link of this kind. Thornicroft et al. (1993), on the other hand, found a positive correlation between unemployment rate and length of stay for total admission rates as well as for rates for schizophrenia.

Until now, readmission rates have not been used a great deal together with social indicators. Dekker et al. (1997) found a positive correlation between the percentage of readmissions and the level of social deprivation. Furthermore, it has also been found that admission rates correlated positively to area readmission ratios (number

of episodes divided by number of people; Kammerling & O'Connor, 1993); however, the role of deprivation is unclear here. This result does show that readmission ratios can in part explain higher total admission rates. In addition, findings on readmission provide indications with respect to the dispute between the drift theory and the social stress theory. If it were to be demonstrated that the readmission rates are higher in socially deprived areas, given a particular diagnosis, this could be interpreted as a consequence of the greater social stress which people in deprived areas are thought to experience.

This study examines the relationship between admission rates for separate diagnostic categories and social deprivation. In addition, length of stay and readmission ratios for the different diagnostic categories will also be examined in relation to social deprivation. We expect that the combined results of three service-use variables will be able to provide a greater insight into the relationship between admission rates for separate diagnostic groups and social deprivation.

11.2 Method

11.2.1 Independent variables

Amsterdam has 18 urban districts with a total of 724,000 inhabitants (1/1/1994) in an area of 20 km². Each district consists of smaller areas. In all, there are 93 areas or neighbourhoods in Amsterdam. 12 areas with fewer than 1,000 inhabitants over 19 (the minimum age of the patient group studied) have not been included in the analyses. This study covers 81 areas with a joint population of 578,000 inhabitants over 19 (1/1/1994).

For the purposes of a factor analysis, the values were established for 15 indicators for these 81 areas. For a description of these variables, the reader is referred to Dekker et al., 1997 (table 1), where the same variables were used. That article only used 1992 census data for the factor analysis. Given the fact that the census data in this study is linked to admission data for a longer period (1992-1995), we have included the 1994 census data. The 15 indicators have now been calculated as weighted averages of the census data from 1992 and 1994. For income, only data from 1994 was available. The percentage of ethnic minorities is also based solely on data from 1994, because of a difference in the definition method compared to 1992.

The variables were subjected to Principal Component Analysis with varimax rotation (Stevens, 1996). Four groups of areas were established on the basis of the standard deviation for the derived area factor scores. First, an area score was calculated on the basis of the z-scores (i.e. the scores, in standard deviation units, that express the level of a value with respect to the mean) for the census variables, by summarizing (without weightings) the z-scores on the basis of the factor solution (see table 1). The standard deviation for the 79 factor scores was then used for a breakdown into

four areas. The groups include areas with low, moderate, fairly high and very high socioeconomic deprivation, in the standard deviation categories $sd < -1$; $-1 \leq sd < 0$; $0 \leq sd \leq 1$; $sd > 1$ respectively.

A check was carried out on the 1994 census data to see whether there were major differences with the 1992 census data. This was done by determining the correlation between area factor scores on the basis of 1992 data and of 1994 data. This Pearson correlation proved to be high for both factors (both 0.99; $p = .000$).

11.2.2 *Dependent variables*

11.2.2.1 *The Dutch mental health system*

First, we will describe the Dutch mental health system. Mental health services for all mentally ill patients in the Netherlands are provided in three major settings: outpatient services, halfway houses (hostels, hotels, and other community-based facilities), and hospitals (General Psychiatric Hospitals, General Hospital Psychiatric Units and Psychiatric Teaching Clinics). Services are paid for by insurance companies, and all citizens are required by law to pay for all of their insurance for mental health care. The government stipulates the sizes and budgets of the treatment programs. Until the 1990s, services provided in hospitals accounted for most of the mental health budget, about 70 per cent. However, in recent decades, the volume of outpatient services, including day-treatment and halfway house services, has slowly increased, while the number of hospital beds has decreased very slightly.

11.2.2.2 *Admission data*

The dependent variables in this study relate to the rate of treated psychiatric disorders for each area. The admission figures were obtained from the City Psychiatric Register (Stedelijk Bureau Patiëntenstromen - SBP). This institution was established by the hospitals of Amsterdam in 1991 and records all admissions in Amsterdam to the psychiatric institutions under discussion (as referred to above). The patients admitted to addiction clinics are not included in this register. The first report from the register to all the hospitals participating in the scheme covered the year 1992. This study relates to all admissions of people over 19 living in Amsterdam who were admitted to hospitals (General Psychiatric Hospitals, General Hospital Psychiatric Units or to Psychiatric Teaching Clinics) during the research period 1992-1995. During this period, patients who were admitted to partial or day hospital programs were also considered to be admissions; assertive case management programs were scarce at that time. Patients admitted to the Crisis Centre (approximately 20%) were left out of the analyses. The main reason for this is that although the patients are admitted as inpatients to this small centre (7 beds), the admissions are only for a few days in

order to deal with the crises (which tend to be more psychological than psychiatric). In general, the proportion of Crisis Centre admissions of all neighbourhood admissions was about the same, so the omission of Crisis Centre admissions will not have a great influence on the findings.

The following figures are included: the number of first admissions during the four-year study period per 1,000 inhabitants per year, standardised indirectly for age and sex (van der Maas & Habbema, 1981); the average duration of admissions (up to reference date 31-12-95); and the percentage of patients who were readmitted during the study period. First admission here means the first admission after 1-1-92 in the case register, which became operational in 1991.

The admission figures were standardised indirectly for age and sex using averages determined on the basis of area population data for 1/1/1992 and 1/1/1994 broken down according to sex and age (20-39, 40-64 and over 65). The standard population was the population of Amsterdam aged 20 years or older.

During the period 1992-1995, there were 11,377 admissions of people aged over 19 resident in Amsterdam. 16% (1812 admissions) of these were admissions to the Crisis Centre. These have been omitted from the analyses. Of the remaining 9,565 admissions, 5,606 were first admissions in the period 1992-1995. Of the cases concerned, the exact area was unknown in 14% and these cases therefore had to be left out of the analyses. The patients were then selected who came from the 81 areas with more than 1000 inhabitants aged above 19 (21 cases excluded). Two areas were then eliminated from the factor analysis because of the absence of income data.

11.2.2.3 *Diagnosis*

The above admission figures were determined for each diagnosis category. Using the ICD-9 codes for the first psychiatric diagnosis or the diagnosis at the time of discharge if there was no admission diagnosis, the following five diagnostic groups were formed: schizophrenia (ICD-9 code 295), affective psychosis (code 296), organic psychosis (codes 290, 293, 294), other psychoses (codes 291, 292, 297-299), neuroses (codes 303-319 –with the exception of 312-, and V codes 61 and 62), and personality disorders (codes 301, 302, 312).

The diagnosis used was the ICD-9 admission diagnosis and, where this was not known (24%), the discharge diagnosis was used where possible. There was, incidentally, a reasonable level of consistency between diagnoses upon admission and upon discharge: there was a difference in 18% of the patients with a stated diagnosis upon admission and discharge. Ultimately, the diagnoses were unknown in 12% of the cases and these were excluded from the analysis. The remaining 4238 cases from 79 areas were studied for the relationship between characteristics of the areas and psychiatric utilisation figures.

11.2.3 Statistical procedures

The admission rates and their 95% confidence intervals were determined for each category. In order to test for a main effect of the factor score, a one-way ANOVA was carried out on the area admission rates per category. Post-hoc analysis with Bonferroni correction was performed in order to determine which categories were different from each other in the case of a significant main effect. The Pearson correlations were also determined between the area admission rates and the area factor scores. In order to test for length of stay, one-way ANOVA with post-hoc analysis was also used. Given the fact that the distribution for the length of treatment was positively skewed to a considerable extent, the test was carried out on log-transformed values. The readmission percentages within the four groups were compared using the Chi-square test. In a secondary analysis, the correlation between comorbidity and length of stay was analysed using ANOVA and the correlation between comorbidity and readmission was analysed on the basis of logistic regression. All the statistic analyses were carried out using SPSS.

11.3 Results

11.3.1 Factor analysis

In a previous work (Dekker et al., 1997), we used factor analysis with varimax rotation for the 1992 census data and found a factor solution with two factors which, together, explained 66% of variance. These factors were designated as 'Housing quality' and 'Socioeconomic deprivation'. After the addition of the 1994 census data, the same factor solution was found. In the previous study, we found that, by contrast with the 'Socioeconomic deprivation' factor, 'Housing Quality' was only related to a limited extent to admission. We will therefore confine ourselves to the former factor.

Table 1 shows the weighting of the indicators for the factor.

Table 1: Principal components analysis: factor loadings of census variables for factor 'Socioeconomic deprivation'

Variable	Factor loadings
Social security	0.84
Ethnic minority	0.82
Unemployment	0.77
One parent family	0.77
Income	-0.76
Home ownership	-0.63
Room density	-0.49
Eigen value	3.08
Explained variance	21%

Most of the components of the factor are directly linked to the socioeconomic circumstances in the areas (social security, income, unemployment, home ownership, room density). It emerges that a high percentage of ethnic minorities and one-parent families is generally associated with poorer average socioeconomic circumstances.

11.3.2 Socioeconomic deprivation and admission rates

In order to examine the relation between admission rates and deprivation, the 79 areas were sorted into four groups on the basis of the area factor scores as described in the method section. Table 2 shows the characteristics for the four groups.

It can be seen from the distribution over the four categories that the distribution of the factor scores –and therefore the areas - is very skewed. Table 2 also gives the standardised first admission rates for the separate diagnostic groups according to socioeconomic deprivation. One-way analysis of variance revealed possible differences between the groups of areas. Significant differences were found in terms of total admission rates. In the case of the separate diagnoses, this applies to schizophrenia, other psychotic disorders and the category of neurotic disorders. There is a pattern in these differences in which rates increase with socioeconomic deprivation. In order to increase the possibility of comparison with other research and in order to determine the strength of the link between deprivation and admission rates, the correlation was also determined between the ratios for the areas and the area SES score. Rates for schizophrenia, for other psychoses, for neuroses and personality disorders correlate significantly with SES; 0.54, 0.52, 0.54 (Pearson's-correlation; all $p < .001$) respectively. The total rates also correlate significantly with SES: 0.66 ($p < .001$). These correlations reflect the trends which can be seen in table 2.

11.3.3 Socioeconomic deprivation in relation to length of stay and readmission

Table 3 presents the average length of stay for the first admission and the percentage of all patients who were readmitted, broken down according to diagnosis and level of socioeconomic deprivation.

The average length of stay was highest for organic psychosis, followed by schizophrenia. In the mean totals, it emerges that the patients from the areas with low socio-economic deprivation have a longer average length of stay than patients from the fairly high and very highly-deprived areas. In the separate diagnosis groups, there are two categories with significant differences. In the category 'other psychotic disorders', the patients from areas with low socioeconomic deprivation have, on average, a significantly longer length of stay than the patients from fairly highly deprived areas. In the category 'other psychoses', the patients from

Table 2: First admission rates standardised for age and sex, with 95% confidence intervals, per diagnosis group according to level of socioeconomic deprivation

Socioeconomic deprivation:	Number of areas	Inhabitants over 20 (1/1/1994)	Number of admissions	Schizophrenia	Affective psychosis	Organic psychosis	Other psychotic disorders	Neurotic disorders	Personality disorders	Total
Low (1)	14	67,559	373	0.29 (0.16-0.41)	0.33 (0.19-0.47)	0.18 (0.08-0.28)	0.26 (0.14-0.38)	0.22 (0.11-0.33)	0.06 (0.00-0.12)	1.35 (1.08-1.63)
Moderate (2)	19	119,105	778	0.42 (0.30-0.53)	0.34 (0.24-0.45)	0.18 (0.10-0.26)	0.26 (0.17-0.35)	0.33 (0.23-0.44)	0.07 (0.02-0.11)	1.60 (1.37-1.83)
Fairly high (3)	34	267,156	2019	0.45 (0.37-0.53)	0.39 (0.31-0.46)	0.21 (0.15-0.26)	0.36 (0.29-0.43)	0.40 (0.33-0.48)	0.10 (0.06-0.17)	1.90 (1.74-2.07)
Very high (4)	12	116,718	1068	0.70 (0.55-0.85)	0.38 (0.27-0.50)	0.26 (0.17-0.35)	0.42 (0.30-0.54)	0.45 (0.32-0.57)	0.11 (0.05-0.17)	2.33 (2.05-2.61)
Total	79	570,538	4238	0.48 (0.42-0.54)	0.37 (0.32-0.42)	0.20 (0.17-0.24)	0.34 (0.29-0.39)	0.38 (0.32-0.43)	0.09 (0.07-0.11)	1.86 (1.75-1.97)
Number of admissions				1096	841	467	774	855	205	4238
One-way ANOVA				1 < 2, 3, 4 and 2, 3 < 4; $F = 17.18$, $df = 3$, $p < 0.001$	Ns	Ns	1 < 3, 4 and 2 < 4; $F = 9.59$, $df = 3$, $p < 0.001$	1 < 2, 3, 4; $F = 8.58$, $df = 3$, $p < 0.001$	Ns	1 < 2, 3, 4 and 2, 3 < 4; $F = 23.50$, $df = 3$, $p < 0.001$

Table 3: Length of stay (median with interquartile range) and percentage readmitted patients in the period 1992-1995, per diagnosis group according to level of socioeconomic deprivation

	Schizophrenia	Affective psychosis	Organic psychosis	Other psychotic disorders	Neurotic disorders	Personality disorders	Total
<i>Length of stay</i>							
Socioeconomic deprivation	Median (interq. range)	Median (interq. range)	Median (interq. range)	Median (interq. range)	Median (interq. range)	Median (interq. range)	Median (interq. range)
Low (1)	67.0 (191.8)	64.0 (91.0)	52.0 (63.5)	87.0 (181.0)	68.5 (194.3)	68.5 (385.0)	65.0 (138.5)
Moderate (2)	51.5 (120.5)	56.5 (101.3)	60.0 (88.0)	32.5 (82.8)	47.0 (103.0)	70.0 (211.0)	52.0 (109.0)
Fairly high (3)	46.0 (117.0)	48.0 (87.5)	56.5 (81.3)	34.0 (82.0)	29.0 (113.5)	65.0 (173.3)	44.0 (99.0)
Very high (4)	60.0 (131.0)	38.0 (77.5)	67.5 (110.8)	40.0 (92.5)	31.0 (136.0)	55.0 (158.8)	43.5 (113.8)
Total	52.0 (127.0)	49.0 (87.5)	58.0 (92.0)	37.0 (90.0)	32.0 (120.0)	64.0 (184.0)	47.0 (109.0)
One-way ANOVA on log-transformed values	Ns	1 > 4; $F=3.05$, $df=3$, $p<0.05$	Ns	1 > 3; $F=3.15$, $df=3$, $p<0.05$	Ns	Ns	1 > 3,4; $F=5.14$, $df=3$, $p<0.01$
<i>% readmitted patients</i>							
Socioeconomic deprivation							
Low (1)	45.8	37.1	11.5	23.9	28.3	31.3	30.6
Moderate (2)	46.7	40.8	17.9	39.8	29.6	30.3	36.0
Fairly high (3)	50.3	45.4	19.4	37.2	31.0	31.1	38.6
Very high (4)	45.3	44.2	15.9	36.6	26.6	26.0	36.5
Total	47.8	43.3	17.3	36.3	29.5	29.8	36.9
Chi-square test	Ns	Ns	Ns	Ns	Ns	Ns	$\chi^2=9.24$, $df=3$, $p<0.05$

areas with low deprivation levels also had significantly longer lengths of stay than patients from the 'very highly deprived areas' group.

The proportion of readmitted patients during the study period proved to be lowest in the case of patients with an organic psychosis and highest in the case of people with the diagnosis schizophrenia. Testing showed that there was only a significant difference in terms of deprivation in the totals. Patients from areas with low socioeconomic deprivation were readmitted less often than patients from the other categories.

11.3.4 The role of comorbidity

It could be concluded from the patient database that, of the people with a defined psychiatric diagnosis, 29.7% had a second (different) psychiatric diagnosis. The secondary analysis was conducted in order to see whether comorbidity is associated with higher levels of utilisation, expressed as longer length of stay and a higher risk of readmission. ANOVA showed that psychiatric and somatic comorbidity was not associated with length of stay, standardised for socioeconomic deprivation and diagnosis. Logistic regression showed that psychiatric comorbidity carried a significantly lower risk of readmission (Wald 15.46, $df=1$, $p<.05$; standardised for socioeconomic deprivation, diagnosis and length of stay). This also applies to somatic comorbidity (Wald 13.13, $df=1$, $p<.05$).

11.4 Discussion

11.4.1 Admission rates and socioeconomic deprivation

It was found that, in Amsterdam, total admission rates at the area level differ considerably according to the level of socioeconomic deprivation. Rates for schizophrenia, neurotic disorders and other psychotic disorders showed several significant differences according to the level of socioeconomic deprivation. Rates for affective psychoses, organic psychoses and personality disorders did not show significant differences between levels of socioeconomic deprivation. Our findings with respect to total admission rates and the separate diagnosis groups schizophrenia and other psychotic disorders correspond to previous findings (Klusmann & Angermeyer, 1987; Harrison et al., 1995; Levy & Rowitz, 1971; Thornicroft et al., 1993; Boardman et al., 1997). The stated correlations indicate that the relationship found in Amsterdam was less strong than found recently in English studies (Harrison et al., 1995; Boardman et al., 1997). No clear reasons can be given for this. It is possible that the ecological homogeneity (Hafner & an der Heiden, 1985) of the areas studied is less in Amsterdam so that the variation in deprivation is also less within our study area.

By contrast with the scarce studies conducted previously (Levy & Rowitz, 1971; Harrison et al., 1995), the present study found no link between rates for organic psychoses and socioeconomic deprivation. The fact that there was no relation with socioeconomic deprivation for affective psychoses is not exceptional. This concurs with Klusmann and Angermeyer (1987) but conflicts with the findings of Boardman et al. (1997). Our findings with respect to the category of neurotic disorders actually concur with Boardman et al. (1997). The findings with respect to neurotic disorders also correspond to other findings (Levy & Rowitz, 1971; Klusmann & Angermeyer, 1987), but not to Harrison et al. (1995). Finally, our findings relating to personality disorders concur with Harrison et al. (1995), but not with Boardman et al. (1997).

Incidentally, these comparisons between diagnostic categories in different studies are somewhat problematic, given the fact that the diagnosis groups used seldom match. The group of affective disorders in particular is categorised in various ways in the different studies so that a good comparison is often not possible.

11.4.2 Prediction

Harrison et al. (1996) concluded that admission rates for psychotic disorders are better predictors of need than rates for non-psychotic disorders like neuroses. They claim that rates for non-psychotic disorders in districts are affected quite a lot by the capacity which is taken up by patients with psychotic disorders. In addition, the inpatient rates for non-psychotic disorders are also determined by the degree to which outpatient alternatives, i.e. community services, are in place. Boardman et al. (1997), who replicated the Harrison et al. study on a smaller scale - at ward level in one health district - found, on the other hand, a positive correlation between rates for non-psychotic disorders and deprivation. The authors claimed that this positive relation, together with the fact that rates for non-psychotic disorders were not reduced by community services, made this a useful indicator of need. We believe that this conclusion does not undermine the findings of Harrison et al. We suppose that the differences in findings with respect to non-psychotic disorders between Harrison and Boardman are linked to differences in the size of their research areas. Harrison studied 19 health districts with a population at risk of about 2.5 million people between 15 and 64 years (on average 132,000 people per analysis unit). Boardman et al. (1997) studied 71 wards in one health district with 294,717 persons (an average of 4,150 per district). The latter corresponds most to our study (7,138 per area). Another feature matched by our study is the finding that rates for neurotic disorders differ according to socioeconomic deprivation. We presume that differences in admission pressure for psychotic disorders and differences in the availability of community services can more easily distort correlations as the research area gets larger. It is expected that differences in capacity will emerge more readily between large areas such as districts (as in

the Harrison et al. study) than, for example, between wards in a single district (the Boardman et al. study). In this way, the rates at the ward level will reflect the ratios in need more, whereas the ratios on the district level will also express the differences in capacity. Rates for psychotic disorders, which are the most severe psychiatric disorders for which there are almost no alternative facilities, will therefore, in our opinion, generally remain the most reliable indicators of inpatient capacity according to the level of socioeconomic deprivation.

11.4.3 Length of stay and readmission

We found a significant difference in length of stay in the totals per deprivation category. This was expressed as a longer average length of stay for patients from the least socioeconomically deprived areas compared to the patients from fairly highly deprived and very highly deprived areas. After a breakdown according to diagnosis, it emerged that the average length of stay for affective psychoses and for other psychotic disorders differed pairwise according to socioeconomic deprivation, with longer length of stay in the least deprived areas compared to a more deprived category. Given the diagnosis, the length of stay is therefore influenced to a certain extent by the level of socio-economic deprivation of the area, but this influence is not a strong one.

We found a significant difference in the percentage of readmitted patients only in the totals per deprivation category. Of the patients from the least deprived group of areas, a lower percentage were readmitted than is generally the case. Broken down according to diagnosis, it emerged that the proportion of readmitted patients did not vary according to level of deprivation.

In this study, the readmission figures are limited in the sense that it was 'only' possible to determine them for a period of four years. Despite this limited period, this figure establishes a clear picture of the level of 'rapid' relapse, an item of information which we consider to be important in policy terms.

The high readmission percentages for, in particular, schizophrenic patients are related to the 'revolving door' phenomenon. Alcohol/drug problems and noncompliance with medication are thought to be factors which are particularly closely associated with frequent admission in this group (Haywood et al., 1995). In general, not being married, unemployment and more severe initial diagnosis are associated with the revolving door phenomenon (Rabinowitz et al., 1995). In recent years, more attention has been devoted to this type of patient in Amsterdam by means of assertive community treatment.

11.4.4 Drift theory versus social stress theory

The fact that socioeconomic deprivation is not linked to the percentage of patients who are readmitted according to diagnosis demonstrates that common

characteristics of deprived areas such as smaller homes, high population density and more criminality are perhaps associated with an increased risk of admission for some diagnosis groups but that, in Amsterdam, this is not associated with a longer admission period or a higher risk of readmission. These findings concur with the drift theory (more vulnerable people in deprived areas) and they do not support the social stress theory given the fact that we would then have had to find some differences in readmission.

Thornicroft et al. (1993) argue that social isolation and a poor social network lead to greater utilisation, particularly among schizophrenic patients (Faccincani et al., 1990). At the aggregate level, pointers in this direction have also been found in the form of correlations between the proportion of people living alone and admission rates for schizophrenia (Tischler et al, 1984). Our results relating to length of stay and readmission show that, in Amsterdam, there are no signs that the social networks of the patients vary according to the degree of social deprivation of the area, with living alone and persons per household being factor variables in this factor.

For the time being, on the basis of the three utilisation indices studied, we can conclude that deprived areas generate more admissions but that the average length of stay and the risk of readmission, given the diagnosis, varies little according to deprivation. A distinction according to diagnosis when predicting the need for care on the basis of deprivation seems to us to be very desirable since it has emerged that there are considerable differences in the average length of stay and the risk of readmission between the various diagnosis groups. A breakdown according to diagnosis is also desirable in terms of the content of treatment in order to arrive at the coordination of facilities for specific disorders.

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