

Psychiatric health services research: from process to outcome –

A presentation of two planned projects in northern Norway

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ABSTRACT

Most studies of psychiatric services at the system level describe and analyze the patients and their utilization of the services. There is a need, however, to relate such data to outcome measures at the patient level. Two studies of the psychiatric health care services in northern Norway are planned: The North Norwegian Study on First-time Admitted Patients to Psychiatric Hospital (the FINN-study) and the North Norwegian Study on New Patients to Community Mental Health Centers (the NINN-study). In both studies one-year cohorts of new patients will be followed for one year. Data will be collected at the individual level (the patient and the family) and the system level (the psychiatric services and the community). Patient data will be collected along several dimensions, from multiple perspectives and at different times. The dimensions include sociodemographic data, diagnoses, symptoms, functioning, life events, motivation and satisfaction with the services. The perspectives include the interviewer's, the patient's (self-rating schedules) and the family's. The timepoints are at admission, at discharge and at follow-up. This will give a description of the psychiatric services, the patients, their utilization of the services, cost and outcome. By analyzing the data, independent factors important for utilization, cost and outcome can be distinguished. Methodologically, efforts will be made to ensure both internal and external validity and thus expand our knowledge in this field.

INTRODUCTION

The development of the psychiatric services has to a great extent been guided more by ideology than by empirical knowledge. By the end of the 1980s psychiatric health services research was sparse and rather uncoordinated in all the Nordic countries (Westrin 1990). This deficit of health services research and lack of knowledge in an era of rapid changes in psychiatric health care, led to the demand of increased research activity in the Nordic countries (Lehtinen 1990). This contributed to the establishment of a Nordic planning group for psychiatric health services research in 1986 by the Nordic Coordination Council for Medical Research (NOS-M, nordisk samarbeidsnemnd for medisinsk forskning) to promote Nordic collaboration in psychiatric health services research (Lehtinen 1990). The Nordic Comparative Study on Sectorized Psychiatry is one study that came about due to this initiative (Saarento 1996, Sandlund 1998, Øiesvold 1999). The study is a follow-up study of new patients in seven psychiatric care organizations in four Nordic countries. It is the only study in the Nordic countries that included several care organizations presenting characteristics of a treated incidence cohort and utilization of the psychiatric health care services. However, no outcome measures were used and generally, at least in the Nordic countries, this is lacking in studies of psychiatric

health care on a system level, though its importance is emphasized (Hansson 2001).

Several models have been proposed for studying health services. The Goldberg-Huxley model describes a framework of several levels and filters along the pathway from need to utilization and has stimulated psychiatric health services research (Goldberg and Huxley 1980). According to the model, the framework consists of five levels at which survey data can be considered, each one corresponding to a stage on the pathway to psychiatric care. A set of four filters is postulated between these five levels. The authors describe the pathway to care as a series of decisions. Level 1 comprises all psychiatric cases in the community; level 2 is all psychiatric cases consulting primary care; level 3 refers to those identified with psychiatric morbidity in primary care; level 4 is the total morbidity in the psychiatric services; and level 5 comprises those patients reaching the level of inpatient psychiatric care. Filter 1 is the patient illness/consulting behaviour; filter 2 is the recognition of mental illness in primary care/general practitioner; filter 3 is the primary care/general practitioner's decision to refer to the psychiatric services; and filter 4 is the decision by psychiatrist to admit.

Health services research as a multidisciplinary task, however, should be concerned with *the need for services* both at the individual level and in the population,

and how the services meet these needs with regard to supply of services, utilization and effectiveness. The study of *supply of services* in mental health care, the availability and accessibility of the services, is of interest primarily with regard to equity in provision. According to Sytema (1994), the study of *service utilization* in mental health care is of interest within two domains of social psychiatric research: the epidemiology of mental disorders and the evaluation of mental health services. The latter is in accordance with Eaton (1996) who states that utilization measures like the volume of service, rate of rehospitalization and continuity of treatment in addition to satisfaction with the services/treatment are important measures of outcome at the service level. Evaluating the *effectiveness of services* with regard to different individual outcome measures, such as psychopathology, functioning and quality of life, and the relationship between such outcome measures and service utilization/cost (*cost-effectiveness*), is an important goal for service evaluation as the ultimate goal of the services' efforts is better outcome for the patients. This model could be designated a 'need-demand-utilization-outcome' model.

Tansella and Thornicroft (1998) have proposed 'the matrix model' as a conceptual framework for mental health services. Three geographical dimensions (country/region level, local level and patient level) and three temporal dimensions (input phase, process phase and outcome phase) comprise nine cells in the matrix, and provide an alternative organization of the items in the preceding model.

There are now planned two studies of the psychiatric health care services in northern Norway. One study, the North Norwegian Study of First-time Admitted Patients to Psychiatric Hospital (the FINN-study) is a high cost study of patients admitted for the first time to the two psychiatric hospitals in the region. The other study, the North Norwegian Study of New Patients to Community Mental Health Centers (the NINN-study) is a low cost study of new patients admitted to 6 community mental health centers in the region.

The aim of the investigations is to study demand, utilization, cost and outcome as described by the 'need-demand-utilization-outcome' model. This will provide a description of the psychiatric services and the patients they treat, the patients' utilization of the services and their outcome. This will correspond to level 4 and 5 in the Goldberg-Huxley model. By analyzing the data, independent factors important for utilization, cost and outcome can be distinguished.

MATERIAL AND METHODS

The region and the psychiatric services

North Norway comprises about 113000 km² and more than half of Norway in length. About 500 000 people live here, mostly in rural or semi-urban surroundings. Along the coast fishery is the traditional way of living. North Troms and Finnmark, especially, are multiethnic

areas with Sami people and Finnish immigrants in addition to Norwegians. The two largest cities in the area are Tromsø in Troms County, with a population of about 60,000 people, and Bodø in Nordland County, with about 45,000 people. The psychiatric hospitals are located in these two cities: the psychiatric department at the University Hospital in northern Norway in Tromsø covering a population of about 250,000 people in Troms and Finnmark and the psychiatric departments at the Nordland Hospital in Bodø covering Nordland. In addition there are community mental health centers, 7 in each of the hospitals' regions.

Design

The North Norwegian Follow-up Study of First-time Admitted Patients to Psychiatric Hospital (the FINN-study) is a prospective cohort study of treated incidence, utilization and outcome with follow-up after one year. The treated incidence cohort will include all new inpatients to the adult departments of two psychiatric hospitals during a period of one year. 'New' is defined as not having been in contact with the hospital previously. Though the hospitals ordinarily admit only patients aged 18 years or over to the adult departments, all patients admitted will be included in the study regardless of age. The follow-up period is one year after admittance to the hospital. The number of patients expected to be included in the study is estimated to about 300-500.

A parallel study using the same design as in the FINN-study is The North Norwegian Follow-up Study of New Patients to Community Mental Health Centers (the NINN-study). This study includes 6 community mental health centers in northern Norway, but has a less ambitious data collection protocol. The study will include patients, either inpatients or outpatients, which are new to the community mental health center. About 500-800 patients are expected to be included in this study.

Data collection

Data in both studies will be collected at the individual level (the patient and the family) and the system level (the psychiatric services and the community). Patient data will be collected along several dimensions, from multiple perspectives and at different times (Table 1). The dimensions include sociodemographics, diagnoses, symptoms, functioning, life events, motivation and satisfaction with the services. Perspectives include the interviewer's, the patient's (self-rating schedules) and the family's. The timepoints are admission, discharge and at one-year follow-up. In the FINN-study, an interviewer from the research team will meet the patient at admission and discharge and administer data collection. The data at admission and discharge will be collected by the treatment staff in the NINN-study. At follow-up a telephone interview will be performed in addition to self-rating scales from the subjects in both studies.

Table 1. Overview of instruments to be used at the patient and family level.

	Admission	Discharge	1-year follow-up
Sociodemographic data	MBD* ¹		MBD*
Cost	CSSRI ²		CSSRI
Diagnoses	M.I.N.I. ³	SCID-II ⁴	
Symptoms	SCL-90* ⁵	SCL-90*	SCL-90*
Functioning	GAF* ⁶	GAF*	GAF*
	HoNOS* ⁷	HoNOS*	HoNOS*
Life events	Check list ⁸		Check list
Motivation	PEH ⁹	PEH	
Satisfaction		Spri-scheme* ¹⁰	
Burden on family	ECI* ¹¹		ECI*

*To be used in both studies. Instruments not marked will be used only in the FINN-study.

¹Minste Basis Datasett, ²Client Sociodemographic and Service Receipt Inventory (Chrisholm and Knapp 1997), ³Mini International Neuropsychiatric Interview, M.I.N.I. 5.0.0. (Sheehan et al. 1998),

⁴Structured Clinical Interview for DSM-IV axis II Personality (First et al. 1994), ⁵Symptom check list (Derogatis et al. 1977), ⁶Global Assessment of Functioning as tested in Norway by Karterud et al.

(1997), ⁷Health of the Nation Outcome Scale (Wing et al. 1998), ⁸Check list made for the study,

⁹Patient's Experience of Hospitalization (Carsky et al. 1992), ¹⁰(Hansson and Höglund, 1995).

¹¹Experience of Caregiver Inventory (Szmukler et al. 1996).

HoNOS covers a broad area of clinical and social features in a simple and reliable way and from an epidemiological point of view will comprise the cornerstone in the two studies together with MBD (including GAF-S) and SCL-90. SCL-90 is a self-rating scheme covering the most common symptoms in psychiatry.

In the FINN-study, diagnoses will be set according to operationally defined criteria (M.I.N.I. and SCID-II). This will represent a clear strength of this study compared to the NINN-study. In the NINN-study diagnosis will be set 'as usual', in ways that will vary among the centers participating. However, both Jones et al. (1986) and Syttema et al. (1989) have found that when diagnoses are grouped into a limited number of categories, their accuracy is probably acceptable since minor miscodings will often be absorbed within the relevant group.

The use of psychotropic medication will also be registered at all three timepoints in both studies. In the FINN-study, therapeutic activities at the ward will be registered according to a scheme developed by The Norwegian Ministry of Health (1994).

At the psychiatric service level, resources and some other data concerning availability and accessibility will be registered at a specified census date. On the same date a point-prevalence will be taken and these patients will be characterized by their routine diagnoses and certain sociodemographic data, e.g. gender and age. Data concerning the patients' utilization of the psychiatric services in the region (northern Norway) will be collected (e.g. date and duration of inpatient stay, day care and outpatient contacts in addition to some characteristics of utilization such as voluntary or involuntary admission, as well as emergency or non-emergency admission condition). A modified version of The Community Program Philosophy scale (CPPS)

(Jerrell and Hargreaves 1989) will be used to characterize the treatment philosophy at each ward or unit (e.g. outpatient clinic) participating in the two studies. In addition, in the FINN-study, RITS-S (Olofson et al. 1997) will be used to evaluate the treatment given to psychotic patients at each ward and Ward atmosphere Scale (WAS) will be used to describe all the wards involved in the study on various milieu therapeutic dimensions.

When it comes to the catchment areas The European Socio-Demographic Schedule (ESDS) (Johnson et al. 2000) will be used to collect information on the socio-demographic profile of the areas. In addition data describing the resources in primary health- and social care will be collected.

Statistics

In addition to descriptive statistics, explorative correlational analyses will be used to describe associations between variables. Regression analyses with relevant predictor variables depending on research question will be an important tool. ANOVA, t-tests and non-parametric statistics will be used to investigate differences between groups (e.g. the two hospitals). Longitudinally data with repeated measures will be analyzed with relevant ANOVA techniques.

Administration of the study

A research team will collect the data in the FINN-study. An external person will survey the data to assure good quality. Another person will coordinate the data collection to ensure that no patients are missed due to administrative misunderstandings. The senior researchers in the project will function as a referee group in case of questions and unclear matters con-

cerning the data collection, to assure good reliability. Researchers aspiring to complete a dissertation will be given first-author priority in the publication process.

In the NINN-study, which is a low-cost study, one person will be responsible for the identification of new patients. The staff in charge of the patient will otherwise collect the data and secure good quality. Senior researchers will function as a referee group.

RESULTS

The results of the two studies will differ according to the instruments used in each study as described in the previous section. The following is meant as a brief overview and concerns both studies.

The results can be categorized as descriptive and analytical. The use of the psychiatric services in a whole region of Norway will be described: Who are the patients, what kinds of services do they use, how much do they use them, what is the cost of illness, how do they fare, and how satisfied are they with the services? How do their families experience the caregiving?

The analytical elements in the studies concern both the treated incidence cohorts and the individual patients. Which factors predict the size and profile of the treated incidence cohorts from different regions? Predictors of utilization (e.g. patient characteristics and treatment and system factors), cost and outcome will be sought for according to different hypotheses. Especially the role of motivation, patient satisfaction and burden on the family will be elucidated.

Concerning size and profile of the treated incidence cohort the following hypotheses can be tested: The availability and accessibility of health care resources will influence on the size of the treated incidence cohort; The treatment philosophy of the staff will determine the profile of the treated incidence cohort.

Concerning utilization, cost and outcome at the individual patient level, the following hypotheses can be tested: Treatment philosophy of the staff will influence on utilization, cost and outcome; Availability and accessibility of services will influence on utilization (length of stay, continuity of care), cost and outcome; Life events, symptoms and functioning will influence on utilization, cost and outcome; Utilization will influence on outcome.

DISCUSSION

The two studies will cover a population of about 500 000 people in the region of northern Norway including the counties Nordland, Troms and Finnmark. The region has its own distinct characteristics, but the similarities with other regions in Norway or elsewhere in the developed world, are assumed to be more important, making comparisons of interest. Descriptions of the different relevant parts of the region along para-

meters assumed to be of interest for the purpose of the study will be done.

There is a need to describe how the psychiatric health care system functions as well as a need for naturalistic follow-up studies combining data from the system level with individual outcome data to investigate the effectiveness of the services and their cost-benefits. When further developing the psychiatric services one should consider how factors relating to the services influence outcome. Seen together, the two studies will supplement each other to achieve these purposes. They will cover the whole range of psychiatric health care services in a considerable part of the region. This will provide the opportunity to compare the functioning of the psychiatric hospitals with the community mental health centers. Further it will allow the opportunity to elucidate whether different sectors use the hospitals differently and which factors are of importance for this difference.

'New' patients are selected to avoid confounding results by previous experiences with the psychiatric services. The use of multivariate statistics will further strengthen the validity of the findings. By controlling for potential confounding factors in this way, independent predictors can be distinguished.

Another strength of the studies is the participation of several care organizations. Consistent patterns across the service systems can then be distinguished from factors that vary between the service systems. Thus, general patterns can be revealed, and the findings will have increased generalizability (validity) compared to similar findings from one service system only.

McGlashan (1984) has emphasized several key elements of methodology for any particular follow-up study to be eligible for cross-study comparisons: '(1) diagnosis using operationally defined criteria, (2) prognostic or predictor and demographic characterization of the sample, (3) outcome measures from multiple dimensions and perspectives, (4) independence of data collection, (5) reliability testing of the ratings, and (6) bias testing of the non-participating subjects and those unavailable for follow-up.'

In the FINN-study, diagnoses will be set according to operationally defined criteria. Potential confounding variables in the data will be controlled for in the analyses by using multivariate statistics. Data from several domains of phenomena will be collected including characteristics of the catchment areas, the health care systems, treatment variables and characteristics of the patient. One can never collect 'all' data that could potentially affect outcome. Choices have to be made according to such factors as available resources and time.

Outcome will in both studies be measured from different dimensions and perspectives (see 'data collection' above). Again, choices have to be made with regard to available resources and time for interview.

The data will be collected independently in the FINN-study, and not made available for the treatment

staff. In the NINN-study the staff in charge of the patient will collect the data. However, most instruments are self-rating scales such that concerns about reliability between the two studies apply only to diagnoses, GAF and HoNOS. This will to some extent reduce the external validity of this study.

Reliability testing will be performed concerning the diagnostic interviews (M.I.N.I. and SCID-II) in the FINN-study. Diagnostic interviews will be taped, at least five in each diagnostic group, and sessions will be arranged to test the reliability.

There could be a problem with dropouts. Informed consent is needed to be included in the study. Additionally, some patients are discharged within one day

and most of these will not be reached for the interview. It is difficult to estimate the dropout rate, but bias-testing will be performed by using data available from the records.

CONCLUSION

There is a need for a description of the psychiatric health care services and how they function. There is further a need to evaluate their effectiveness and delineate which factors influence this. The two studies presented in this paper represent an opportunity to achieve these goals in a region in Norway.

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