

Staffing Level and Treatment Effectiveness

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Staffing patterns are a major concern in the planning and administration of psychiatric facilities. The cost of professional and sub-professional personnel are the largest expense on psychiatric institution operating budgets. Trained professionals are in short supply and for the foreseeable future will not be available in adequate numbers to staff existing and developing programmes. Such considerations make important the development of more efficient methods for deciding upon staffing levels. At present, clinical experience and uncontrolled comparison of differently staffed clinical programmes are the usual justifications for improved staffing. This study was undertaken to investigate whether a relationship existed between staff time spent in treatment of patients and outcome for a patient group.

METHOD

A two-part experimental study was conducted over three consecutive eight-month periods. A population of 194 male psychiatric patients under 62 years of age and continuously hospitalized for over two years was identified. Characteristics of the population and other details of the design, development and evaluation of the rehabilitation programme have been reported in detail elsewhere (1). Three groups (A, B and C) of 25 each were chosen by lot. No significant differences of these groups from each other or from the total study population existed on age, sex, ethnic group, characteristics of hospitalization, education, employment history, or diagnosis.

During the initial eight months (Part 1) Group A was assigned to a small intensively staffed experimental rehabilitation unit. For the second eight-month period (Part 1) Group B was placed in a multiple ward rehabilitation programme. The major difference between the programmes offered consecutively to Groups A and B was the amount of time staff could spend with individual patients. In the small intensively staffed experimental rehabilitation unit the staff could spend a greater proportion of their time with individual patients than in the multiple ward rehabilitation programme. To quantify the time staff could give to the patients, staff-patient attention ratio was developed. This is defined in Table I which reports the staff-patient

attention ratio for the two treatment conditions. In calculating this measure, formal meetings included staff conferences, patient-staff meetings, therapy, counselling, or discussion groups and walking rounds. Staff-patient attention ratio attempts to express staff-patient interaction in a more realistic manner than does staff-patient ratio. We are exploring the average amount of time actually spent on a unit by a staff member with each patient on that unit, and not just the simple ratio of staff to patients.

TABLE I
*Staff-Patient Attention Ratio**

	Experimental Rehabilitation High-Staff- Patient Condition	Multiple Ward Rehabilitation Low-Staff- Patient Condition
Physicians ..	26.4	2.6
Nursing ..	33.7	7.8
Social Workers ..	19.2	6.0
Vocational Counsellor ..	16.8	2.7
Average ..	24.7	4.6

* Staff-patient attention ratio:

$$\frac{\text{Number of minutes per week spent in formal meetings on a unit by each staff member}}{\text{Number of patients on the unit}}$$

The greater success of Group A under high-staff-patient attention conditions (experimental rehabilitation) compared with the consecutive experience of Group B under low-staff-patient attention conditions (multiple ward rehabilitation) led to a simultaneous comparison of high- and low-staff-patient attention conditions during the final eight months (Part 2). For this, Group C was sorted by lot into two sub-groups which did not significantly differ from each other. These sub-groups were assigned to high- and low-staff-patient attention conditions developed to replicate the original experimental and multiple ward rehabilitation programme conditions.

TABLE II
Results

	Full-time Hospitalization	Part-time Hospitalization	Discharged
Part I			
Experimental rehabilitation (Group A) . .	7	14	4
Multiple Ward Rehabilitation (Group B)	16	5	4
Part II			
Experimental Rehabilitation (Group C1) . .	1	8	3
Multiple Ward Rehabilitation (Group C2)	9	3	1

RESULTS AND DISCUSSION

At a confidence level of $p = .05$ the results presented in Table II are significantly different (chi squared and Fisher's Exact Probabilities Test) comparing full-time versus not-full-time hospitalization and part-time versus not-part-time hospitalization. This supported our contention that staff availability to patients would influence the length of hospitalization. The difference in outcome associated with a difference in staff time available to patients suggests the feasibility of further study of this variable. Clarification of the effects of staffing pattern and levels and their interaction with programme design and patient load is basic to rational assignment of staff to programmes. Methods for deriving an optimal pattern of allocation of available funds and resources from information about parts of a socio-economic system have been available for about 20 years (2). In industry and economics, these methods have been applied to study of the relationships between seemingly diverse components of business or economic systems. All this has led to a more calculated and reasoned invest-

ment of funds with an objective of obtaining maximum system output at minimum cost in money or other scarce inputs. Theoretically, the psychiatric care system and its component sub-systems could be similarly analysed with the objective of achieving maximum benefit from available funds and manpower.

Further studies to assess the effective use of money and manpower are needed to provide a basis by which the psychiatric administrator can intelligently relate the proportions of personnel from different professional disciplines to each other and relate total staffing to investment in facilities, equipment, social welfare benefits to patients and other programme features.

REFERENCES

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