

Ecological Evaluation of Goal Planning and Advocacy in a Rehabilitation Environment for Spinal Cord Injured People

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Summary

A behavioural mapping procedure was used to describe the behavioural profile, pattern of interaction and location of patients in a rehabilitation unit for traumatically spinal cord injured people. Naturalistic observations were obtained during two observational periods (9 months) before and after the implementation of a Goal Planning/Patient Advocate Programme. Results from the first observational study revealed that patients spent a considerable proportion of their time in solitary disengaged behaviours and large amounts of time in the ward area during the 'Therapeutic Day'. The Goal Planning System was introduced to increase involvement in rehabilitation and reduce institutionalisation. The second study which evaluated the ecological impact revealed that patients were observed to spend significantly less time in disengaged behaviours, more time in verbal interaction and significantly less time in the ward area during the Therapeutic Day. It is concluded that the Goal Planning System used is an effective way of maximising the therapeutic potential of the rehabilitative environment.

Key words: Spinal cord injury; Rehabilitation; Behavioural profiles; Goal planning system.

The increased demand for rehabilitation services, throughout the eighties, has highlighted the need not only to evaluate new developments but existing service provision. The main objective of such services is to achieve behavioural change in helping people to manage the consequences of their disability. Yet the application of behavioural change technology remains sparse within the rehabilitative context. Behavioural engagement and compliance in rehabilitation is a major concern for those involved in planning and co-ordinating care for spinal cord injured (SCI) people. Norris-Baker *et al.* (1981), examined the behaviour of SCI persons during hospitalisation and their medical and behavioural status post discharge. They concluded that in-patient involvement in rehabilitation was the best predictor of

outcome status. Therefore, what is required is a method for evaluating the behavioural setting and a strategy for implementing desired changes.

Behavioural mapping techniques have largely been used to evaluate psychiatric treatment environments: Sanson-Fisher, Poole and Thompson, 1978; Kennedy *et al.*, 1988 used a behavioural mapping procedure to detail the behavioural profile pattern of interaction and physical deployment of SCI people in a rehabilitation unit. They found that patients were observed to spend a considerable proportion of their time in solitary and disengaged behaviours. Patients were also observed to spend a large amount of time in the ward area during the therapeutic day. On the basis of these results, Kennedy *et al.* concluded that they were at variance with the concept of active rehabilitation and suggested strategies for institutional change based on those previously suggested by Georgiades and Phillimore (1975) and Houts and Scott (1975). Taken together these strategies include the identification of needs, goal planning, use of advocacy and implementation via a change group composed of key personnel.

The goal planning approach suggested by Houts and Scott is a highly applied form of behaviour modification. It is a method for individually tailoring the rehabilitation programme for SCI patients. Key workers/patient advocates were drawn from the rehabilitation team and trained in goal planning. The main strategies of goal planning are as follows: (1) patient involvement in decision-making; (2) recognition of patient strengths and specific needs; break down of targets into manageable units; (3) state clearly who, will do what, to what degree of success and with whom, and (4) appointment of key worker to coordinate, inform, and advocate.

The present study aims to evaluate the implementation of a goal planning system (Kennedy, 1987) on the behavioural profile, pattern of interaction, and location of patients during rehabilitation following SCI.

Method

Subjects

Observations were carried out in a purpose-built 20-bed spinal injury unit for patients in acute and rehabilitation phases. Subjects were all patients, staff and visitors present on the unit throughout the observational period. All patients had sustained a traumatic injury to the spinal cord.

Materials used were floor plans of the ward and therapy departments, which served as behavioural maps, and a variety of data summary sheets.

Observational procedure

Data was collected by trained observers on 2 days separated by 9 months. They moved throughout the Unit at random intervals, on both occasions, 22 times for a 15 hour period between 9.00 am and 12 midnight. Each location was visited in a predetermined route and the behaviour, pattern of interaction and location of all personnel was appropriately coded. The goal planning system was introduced between the two observational periods.

Behaviours were coded into one of the following 10 molar behavioural

categories. These behavioural categories were drafted and adapted from those previously suggested in the observational literature (Baltes *et al.*, 1983; Fairbanks *et al.*, 1977; Ittleson *et al.*, 1970; Kennedy, 1984; McGuire and Polsky, 1983; Sanson-Fisher and Poole, 1981).

Solitary behaviour

(a) **Isolated disengagement.** This was applied when little external activity occurred in physical isolation, e.g. non-specific gaze while sitting or lying, or sleeping.

(b) **Inactive individual task.** Any activity carried out without interaction, not related to self-care, but involving the same level of engagement with the environment: includes focused attention on objects, watching TV, listening to radio and observing others. (Excludes tasks involving gross physical movements.)

(c) **Active individual task.** Any activity carried out without interaction not related to self-care and excluding inactive tasks. Includes most solitary tasks involving gross physical movement, such as walking, using wheelchair, carrying equipment, doing physiotherapy exercises and using equipment.

(d) **Independent self-maintenance.** All activity associated with the following specific forms of self-care without assistance, i.e. eating, going to the toilet, bathing and dressing.

(e) **Deviant behaviour.** All excessive behaviour which is considered inappropriate by the observer.

Interactive behaviour

(f) **Individual interaction task.** All one-to-one communications associated with providing or receiving task type service facilities, or interaction focused around task type activity. This includes taking temperatures and blood pressure readings, using physiotherapy and occupational therapy equipment, and catheterisation help.

(g) **Individual interaction verbal.** All one-to-one communication during non-task activity or recreation with the focus on verbal aspects of communication. This involved informal discussion, giving advice, verbal instructions, conversation, counselling and attentive listening.

(h) **Group interaction task.** As behavioural category (f), but involving more than two persons and excluding formal meetings.

(i) **Group interaction verbal.** As behavioural category (g), but involving more than two persons and excluding formal meetings.

(j) **Formal meetings.** All formal meetings involving staff, visitors or patients. This includes ward meetings, ward rounds, case conferences, unit meetings and meetings with visitors.

Results

Reliability of observations was assessed between the observers by having both independently record at the same time period. These checks occurred randomly for

10% of observations. Reliability was calculated for each observational unit and expressed as a per cent agreement. Inter-rater reliability was calculated at 90%.

Behavioural profiles

Table I details the behavioural profile of patients throughout the 'Therapeutic Day', evening and overall. Prior to Goal Planning, patients were observed to spend 26% of their time in isolated disengagement during the therapeutic day. However, task interaction remained stable throughout the two periods but verbal interaction increased from 8.8 to 15.2%. In terms of the overall behavioural profile the reduction in isolated disengagement and increase in verbal interaction both reached statistical significance ($P < 0.01$).

Patient involvement in formal meetings increased from 0 to 5.2% during the two observational periods.

Table I Patient behavioural profile. Frequency and percentage of observed behaviours pre- and post-implementation of goal planning

Category	Therapeutic day		Evening		Overall	
	Aug. 1987	May 1988	Aug. 1987	May 1988	Aug. 1987	May 1988
	%	%	%	%	%	%
Isolated disengagement	26.2	17.2	25.4	21.8	25.8	18.9**
Inactive indiv. task	10.7	13.2	27.7	21.1	17.5	16.1
Active indiv. task	8.4	7.6	6.9	2.7	7.8	5.8
Ind. self maintenance	3.8	6.4	5.8	7.5	4.6	6.8
Deviant behaviour	0.0	0.0	0.0	0.0	0.0	0.0
Total solitary	49.1	44.4	65.8	53.1	55.7	47.6
Ind. interaction task	23.7	23.6	12.7	8.8	19.4	18.1
Ind. interaction verbal	8.8	15.2	12.1	21.1	10.2	17.4**
Group interaction task	11.5	8.0	4.1	4.1	8.5	6.5
Group interact. verbal	6.9	3.6	5.2	12.9	6.2	7.0
Formal meetings	0.0	5.2	0.0	0.0	0.0	3.3
Total interactive	50.9	55.6	34.1	46.9	44.3	52.3

**: $P < 0.01$

Table II Overall pattern of observed interaction. Pre- and post-goal planning.

Interactions	Aug. 1987	May 1988
	%	%
Patients with patients	3.4	3.9
Patients with nursing staff	35.6	21.6
Patients with therapy staff	14.9	22.8
Patients with visitors	26.4	29.7
Patients with more than one of above	5.8	2.1
Total involving patients	86.1	80.2
Nurse with nurse	7.2	7.8
Nurse with therapy staff	1.9	1.7
Therapy staff with therapy staff	2.4	4.7
More than one of above/others	2.4	5.3
Total between staff	13.9	19.8

Table III Physical deployment of patients during therapeutic evening and overall total pre- and post-goal planning

Location	Therapeutic day		Evening		Overall	
	Aug. 1987	May 1988	Aug. 1987	May 1988	Aug. 1987	May 1988
	%	%	%	%	%	%
Ward (bed area)	58.4	46.2	70.6	65.4	63.4	53.7***
Day room	5.4	5.6	11.3	9.2	7.8	7.0
Lounge areas		4.9		18.5	4.6	10.2
Toilet/bathroom	1.9	1.6	0.6	0.6	1.4	1.2
Meeting		5.2		2.5	0.0	4.1
Corridor	6.2	8.4	8.5	3.7	7.1	6.5
Staff offices 0.5	0.4	0.8	1.1	0.0	0.7	0.5
Therapy departments 16.5	24.1	27.1	0.0	0.0	13.3	16.5

***: $P < 0.001$

Pattern of interaction

The overall pattern of observed interaction, i.e. who interacted with whom, is presented in Table II. The high rate of interaction involving patients, i.e. 86.1 and 80.2%, indicates the patient focus on the rehabilitation programme. Between the two periods patients decreased their interaction with nurses and increased their interaction with therapy staff. A striking feature of the results is the low level of patient-patient interaction.

Location

The frequencies with which patients were observed to occupy the various locations on the Unit is presented in Table III. Prior to Goal Planning patients were observed to spend almost 60% of their time in the ward area during the therapeutic day, this was reduced to 46% post- Goal Planning. Overall, the reduction in time spent on the ward was one of the most statistically significant results ($P < 0.001$). Post-Goal Planning patients were observed to spend more time in the therapy departments and lounge areas.

Discussion

In addition to providing a reliable and objective description of the functioning of the rehabilitative environment, this study also demonstrates the impact of a highly applied form of behaviour modification on the social ecology. Throughout the observational periods patient solitary behaviour was higher than the rate observed with psychiatric in-patients (Sanson-Fisher *et al.*, 1979) but similar to previous findings by Kennedy *et al.* (1988). On the basis of these results they suggested an underutilisation of the therapeutic potential. However, this study indicates that the goal planning system has helped to significantly reduce patient isolated disengagement and significantly decrease time spent in the ward-bed area. Examination of the behavioural profiles and location pattern permits the distribution of these reductions to be identified. Following Goal Planning, verbal interaction has increased with a moderate increase in engagement in formal meetings. Also,

instead of spending time in the ward area patients are observed to spend more time in therapy departments, thereby suggesting an increase in general activity and engagement in rehabilitation. This increase in activity, has been suggested by Norris–Baker *et al.* (1981), to be correlated with greater community involvement and reduced readmissions.

The small percentage of time patients spent in interaction with other patients (3·4, 3·9%) is considered low and consistent with Kennedy *et al.*'s. (1988) previous finding. This potential loss of peer support can now be targetted as an issue for future improvement. The present study has helped to establish some validity for this method in providing a baseline for evaluating this and other intervention strategies.

The high ratio of the total interaction involving patients (86·1, 80·2%) is higher than the studies previously mentioned, and emphasises the patient focus of the rehabilitation programme.

The increases in patient involvement and activity not only reduce institutionalisation but as Norris–Baker *et al.* (1981) conclude, patients who are mobile in hospital are more likely to participate in the community after discharge. It is concluded that goal planning is an effective strategy in changing patient behaviour and location in directions which enhance the rehabilitative effort.

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