

## Factors Affecting the Choice of Treatment in Occupational Therapy Practice in Hospital-based Care

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The aim of this article was twofold: to describe the occurrence of treatment goals, health-care programmes and type of interventions chosen by occupational therapists; and to investigate relationships between treatment goals, health-care programmes and interventions. A survey on occupational therapy practice was carried out in The Netherlands. A registration form based on the International Classification of Impairments, Disabilities and Handicaps (ICIDH) was filled out for 944 patients. This registration form consisted of three sections: (i) patient characteristics, (ii) occupational therapy diagnosis and treatment goals in terms of ICIDH, and (iii) treatment characteristics. The patients were treated by occupational therapists working in nursing homes, rehabilitation centres or general hospitals. A total of 143 therapists, working in 49 departments of occupational therapy, participated in this study. Relationships existed between treatment goals and health-care programmes on the one hand and interventions on the other. Treatment goals and health-care programmes independently determined the choice of interventions in occupational therapy practice; the choice of interventions was not dependent on specific combinations of goals and programmes. Based on these results, several profiles of occupational therapy treatment were identified. *Key words: health-care programmes, ICIDH, interventions, survey, treatment goals.*

### INTRODUCTION

Apart from an enumerative description of possible interventions used by occupational therapists [1-11], there seems to be no information on which specific interventions are actually used to treat functional deficits of patients and why these interventions are chosen.

The repertoire is wide and there is still a lack of agreement among occupational therapists about the types of treatment that they should be involved in. Such conflict may be due to inadequate knowledge about the activities actually being used in practice and to a deficit in knowledge about the reasons why specific activities are chosen. Discussions are based on what occupational therapists think they do, rather than upon known facts. Therefore, it is useful to study interventions used by occupational therapists and the factors that influence the selection of interventions.

The occupational therapy treatment process starts with an intake. This is followed by (several) assessments and observations to determine the functional capacity of the patient. Furthermore, information is gathered on the future expectations; this is based on the medical diagnosis, information from patient and family on what they want to achieve with the occupational therapy treatment and from other disciplines. On the basis of this multitude of information the occupational therapist and patient together determine which treatment goals will be chosen. Treatment goals can be chosen at the level of impairments (e.g. motor impairments), disabilities (e.g. disabilities in personal care) or handicaps (e.g. handicap in occupational role [12, 13]). In this phase also the direction of the therapy is

determined. Five types of programmes that determine the direction of the therapy can be distinguished [14]: prevention, development, recovery, adaptation and maintenance programmes. With each treatment goal, a different programme can be chosen. For example, with the treatment goal of motor impairments the developmental programme can be chosen, and with self-care disabilities the recovery programme can be chosen. With the choice of a certain health-care programme, it is explicated which assumption is underlying the treatment goal. This means that the choice of interventions depends on both the treatment goals and the programmes (see Fig. 1).

In The Netherlands a survey study on occupational therapy practice was carried out. The present study draws upon data from this survey study. The objective of the present study is twofold. One goal is to describe quantitative aspects of the treatment: the occurrence of treatment goals, health-care programmes and interventions. The other goal is to investigate relationships between treatment goals, health-care programmes and interventions. Several hypotheses on these relationships were formulated.

First, hypotheses on the expected relationships between treatment goals and interventions were formulated. In occupational therapy practice, the aim of the use of games (e.g. peg board) or arts and crafts (e.g. woodworking) is to normalize impairments. With these interventions impairments such as muscle strength, motor control and range of motion can be treated. It can be expected, therefore, that leisure activities (play, arts and crafts) are used to achieve treatment goals at the level of impairments. Splint-making is an important technique carried out by the

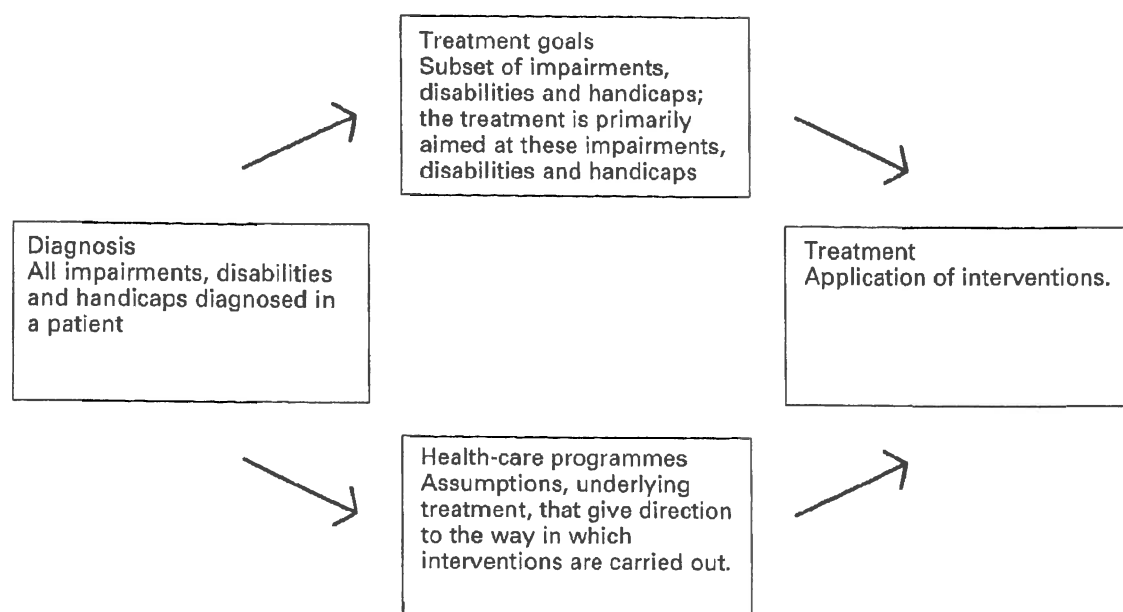


Fig. 1. The relationship between diagnosis, treatment goals, health-care programmes and interventions.

occupational therapist. A person needs a splint to prevent further deformity, to reduce the risk of additional injury or to alleviate pain[14]. For example, a resting splint may be used to keep the wrist and hand in a functional position and to avoid stretching extensor tendons at the wrist. Therefore, it appears that splints are also chosen to achieve treatment goals at the level of impairments. Thus, it can be hypothesized that treatment goals at the level of impairments predict the use of leisure activities and the use of splints.

Advice/instruction is a well-known intervention in occupational therapy treatment. The intervention advice/instruction is expected to be used frequently with treatment goals at the level of disabilities and/or handicaps. Advice and instructions concerning adaptations are used to promote independence and quality of life[15]. Because independence and quality of life are reflected in therapy as goals at the level of disabilities and handicaps, we expect advice/instruction to be associated with goals at the level of disabilities and handicaps.

Secondly, hypotheses on the expected relationships between health-care programmes and interventions were formulated. According to Hagedorn[15], activities are used as remedial agents to enable, enhance or empower occupational performance. Hagedorn states that if an activity is chosen in the intervention phase the therapist aims at improving or (further) development a person's abilities or performance to the demands of the activity. According to the Canadian Association of Occupational Therapy[16], activity is the stimulus to all components of occupational performance and the means by which self-care, productivity and leisure are developed or

enhanced. It was expected, therefore, that the recovery and developmental programmes are associated with activities being chosen as interventions. In addition, it is recommended that if it is not possible to improve further the impairments (e.g. strength, range of motion, balance) or to gain further improvement in occupational functioning, then occupational therapy will focus on adaptation to the dysfunction or disability by means of advice and instruction[17]. This means that the adaptation programme will be related to the intervention advice/instruction.

## METHODS

### Design

A survey study on occupational therapy in The Netherlands was carried out. Data were collected from January 1992 to March 1993. A total of 49 randomly chosen departments of occupational therapy (143 therapists) participated in the study. Each department decided, prior to the study, how many patient registration forms would be filled in. The four fields where occupational therapists were working most hours per week were included in the study, i.e. in nursing homes, rehabilitation centres, general hospitals and psychiatric hospitals. Excluded were institutions for mentally handicapped, treatment of children, private practices and other kinds of treatment in ambulatory care. In the present study only the data of patients in general health-care will be analysed. The number of patients ( $n = 107$ ) registered in the psychiatric hospitals was too small to analyse their data.

The participating institutions were selected randomly from a list of institutions where occupational therapists are working, compounded by the Dutch organization of occupational therapy[18]. General characteristics of the participating occupational therapists were compared with data from a representative sample of occupational therapists working in The Netherlands[19]. The results indicated that there were no substantial differences.

*Registration form.* To investigate the characteristics of the participating patients a standard registration form was used. This registration form consisted of three sections. The first section concerned patient characteristics (i.e. gender, type of insurance, age), referral characteristics and medical diagnosis. The second section concerned the occupational therapy diagnosis (see Appendix). The occupational therapy diagnosis was based on the International Classification of Impairments, Disabilities and Handicaps (ICIDH)[20], and proved to be reliable[12]. The intra-rater reliability of the occupational therapy diagnostic findings was tested in a rehabilitation centre and the inter-rater reliability was tested in a psychiatric hospital, and they appeared to be satisfactory to good: in the rehabilitation centre and in the psychiatric hospital all items and 88% of the items, respectively, had a kappa value higher than 0.45. In this second section therapists also had to fill out the treatment goals they had chosen. Treatment goals were derived from the diagnosed impairments, disabilities and handicaps. The occupational therapist could choose a main category as a treatment goal (see left column of Appendix 1). For example, if locomotor disabilities were diagnosed, the occupational therapist could indicate that the treatment goal was (or was not) directed towards locomotor disabilities. In this section the therapists also had to fill out the treatment goals, with a maximum of five. The third section concerned characteristics of the treatment (length, intensity), the therapeutic interventions and health-care programmes that were chosen. This section was filled in either at 16 weeks (end of registration period) or at the end of the treatment if the treatment was finished earlier. In the registration form a matrix was made in which the therapists could choose two interventions and two programmes with each treatment goal. The interventions were: self-care activities; productivity activities; leisure activities; instruction and advice; group therapy; splints; and other interventions. The original list of interventions in the registration form was longer. This list of interventions was reduced by combining specific intervention items as follows. "Self-care" is defined as: those activities or tasks that are done routinely to maintain the person's health and well-being in the environment[16]. The following items

from the registration form were joined into this category: personal care, locomotor and communication activities. "Productivity" is defined as: those activities or tasks that are done to enable the person to provide support to the self, family and society through the production of goods and services[16]. The following items of the registration form were put together into this category: domestic and occupational activities. "Leisure" is defined as: the components of life that are free from work and self-care activities. The following items in the registration form were joined: leisure, arts and crafts and play activities. The "advice/instruction" category consists of the items advice/instruction on sitting and standing, on the use of aids and on the adaptation of the home (environment). The "group therapy" category consists of two items on task and problem-oriented therapy.

The health-care programmes were adopted from Reed and Sanderson[14] and consisted of five items: prevention, development, recovery, environmental adjustment and maintenance programmes.

#### *Procedure*

As described in a previous article, a total of 1051 patients were included in the survey study on occupational therapy in The Netherlands[13]. In the present article a selection was made out of this group. All patients referred to the occupational therapist in the participating nursing homes, rehabilitation centres and general hospitals were selected, excluding the patients referred to occupational therapy in psychiatric hospitals.

#### *Analysis*

The relationship between treatment goals/health-care programmes and interventions was analysed by means of logistic regression[21]. Data were analysed in two steps: main effects were calculated and then the interaction effects were determined. The main effects show the contribution of treatment goals and health-care programmes to the use of an intervention. For each intervention a total of 18 main effects were calculated. The interaction effects show the contribution that each treatment goal attached to a specific programme makes to the use of an intervention. For each intervention, 83 interaction effects were calculated. The significance of the overall test for logistic regression indicates that treatment goals and/or health-care programmes have predictive value for the use of an intervention. The exponents of the regression coefficients (odds ratio) are measures of the strength and direction of the relationship. An odds ratio higher than 1 indicates a positive relationship: the chance that the intervention was chosen to achieve a treatment

goal/health-care programme is higher than the chance that the intervention was chosen without trying to achieve that treatment goal/health-care programme. The higher the odds ratio, the stronger the relationship. An odds ratio of less than 1 indicates a negative relationship: the chance that the intervention was used to achieve a treatment goal/health-care programme is lower than the chance that the intervention was used without trying to achieve that treatment goal/programme. In order to facilitate the interpretation of odds ratios between 0 and 1, we chose to present the inverse odds ratio in the tables here. To test that the odds ratio is not equal to unity, the Wald statistic was used. This statistic has a chi-squared distribution. The level of significance was set at 0.05.

Only the interventions that were applied to more than 10% of the patients were included in the logistic regression analysis. This means that the intervention "group therapy" is not included in this analysis. Also, the intervention "other" is not included because the activities grouped in this category are so diverse that the interpretation of the results is very hard. The treatment goals included in the analysis were derived from the results obtained in previous research[13]. The treatment goals that occurred in more than 10% of the patients were chosen.

## RESULTS

### Patients

The analysis concerned 944 patients: 60% of the patients were female and the mean age of all patients was 61 years. Most patients were insured with the Health insurance fund (76%). An equal number of patients was treated in inpatient care or treated in day-care facilities.

The medical diagnosis of the patients was classified with the *International Classification of Diseases*, 10th revision, *Clinical Modification*[22]. Most common were diseases of the circulatory system (32%), followed by diseases of the musculoskeletal system and connective tissue (21%), injury, poisoning and certain other consequences of external causes (17%) and diseases of the nervous system (17%). Almost all patients with diseases of the circulatory system suffered from a stroke. For 3% of the patients no medical diagnosis was given.

### Length and amount of treatment

The length of occupational therapy treatment was not prescribed by the referring physician for most patients (92%). The average length of treatment was 10 weeks (minimum 1 week, maximum 55 weeks, SD 9 weeks) and the average amount of occupational therapy treatment was 11 h (minimum 30 min, maximum 100 h, SD 12.5 h). Only 23% of the patients were treated at home.

In those treatment completed within the scope of the

Table I. *Impairments, disabilities and handicaps chosen as a treatment goal by occupational therapists<sup>a</sup>*

| Treatment goals       | %    |
|-----------------------|------|
| <i>Impairment</i>     |      |
| Motor                 | 48.3 |
| Sensory               | 15.4 |
| Cognitive             | 14.0 |
| <i>Disabilities</i>   |      |
| Basic skills          | 31.8 |
| Endurance             | 14.4 |
| Locomotor             | 41.2 |
| Personal care         | 48.4 |
| Domestic              | 35.2 |
| Specific skills       | 12.3 |
| Leisure               | 20.3 |
| <i>Handicap</i>       |      |
| Physical independence | 24.3 |
| Mobility              | 26.0 |
| Occupational role     | 19.3 |

<sup>a</sup> The table shows the percentage of patients ( $n = 944$ ) in whom a particular treatment goal was chosen. The sum of these percentages is more than 100%.

Table II. *Interventions chosen by occupational therapists*

| Interventions              | % patients <sup>a</sup><br>( $n = 944$ ) | % interventions <sup>b</sup><br>( $n = 5507$ ) |
|----------------------------|--|--|
| <i>Activities</i>          |  |  |
| Personal care              | 69.5                                     | 27.8   |
| Productivity               | 46.8                                     | 15.6   |
| Leisure                    | 44.2                                     | 15.7   |
| <i>Advice/instructions</i> | 69.7                                     | 32.8   |
| <i>Group therapy</i>       | 6.1                                      | 1.7  |
| <i>Splinting</i>           | 12.3                                     | 2.9  |
| <i>Other</i>               | 16.7                                     | 3.6  |

<sup>a</sup> Percentage of patients to whom the various interventions were applied. The sum of these percentages is more than 100%.

<sup>b</sup> The part that an intervention has in the total of the interventions. The sum of these percentages is 100%.

Table III. *Health-care programmes chosen by occupational therapists*

| Programmes  | % patients <sup>a</sup><br>( $n = 944$ ) | % programmes <sup>b</sup><br>( $n = 4917$ ) |
|-------------|--|---|
| Prevention  | 23.2                                     | 9.1   |
| Development | 44.4                                     | 20.3  |
| Recovery    | 56.1                                     | 28.7  |
| Adaptation  | 69.5                                     | 32.1  |
| Maintenance | 25.8                                     | 9.8   |

<sup>a</sup> Percentage of the patients to whom the various programmes were applied. The sum of these percentages is more than 100%.

<sup>b</sup> The part that a programme has in the total of the programmes. The sum of these percentages is 100%.

Table IV. Treatment goals and health-care programmes chosen by occupational therapists with each intervention (n = 944)

|                               | Activities on self-care (%) | Activities on productivity (%) | Activities on leisure (%) | Advice/instructions (%) | Group therapy (%) | Splinting (%) | Other (%) |
|-------------------------------|-----------------------------|--------------------------------|---------------------------|-------------------------|-------------------|---------------|-----------|
| <i>Treatment goals</i>        |                             |                                |                           |                         |                   |               |           |
| <i>Impairments</i>            |                             |                                |                           |                         |                   |               |           |
| Motor                         | 32.7                        | 24.5                           | 27.5                      | 29.2                    | 3.4               | 11.1          | 9.5       |
| Sensory                       | 8.8                         | 7.8                            | 8.8                       | 8.6                     | 1.4               | 4.6           | 3.7       |
| Cognitive                     | 11.8                        | 5.8                            | 8.3                       | 5.9                     | 1.1               | 0.0           | 3.3       |
| <i>Disabilities</i>           |                             |                                |                           |                         |                   |               |           |
| Basic skills                  | 21.1                        | 16.5                           | 15.8                      | 22.4                    | 2.0               | 3.9           | 5.8       |
| Endurance                     | 8.1                         | 8.4                            | 5.8                       | 11.3                    | 0.06              | 1.8           | 2.1       |
| Locomotor                     | 33.4                        | 18.1                           | 16.3                      | 50.1                    | 2.2               | 1.8           | 5.1       |
| Personal care                 | 43.3                        | 20.9                           | 20.3                      | 35.2                    | 2.3               | 3.2           | 6.8       |
| Domestic                      | 26.1                        | 31.9                           | 17.4                      | 28.1                    | 2.5               | 2.9           | 5.8       |
| Special skills                | 8.6                         | 8.8                            | 6.9                       | 7.5                     | 1.3               | 2.3           | 3.3       |
| Leisure                       | 13.6                        | 10.2                           | 16.5                      | 14.3                    | 1.8               | 1.9           | 3.8       |
| <i>Handicap</i>               |                             |                                |                           |                         |                   |               |           |
| Physical independence         | 21.1                        | 9.6                            | 9.3                       | 16.7                    | 1.3               | 1.1           | 3.3       |
| Mobility                      | 21.3                        | 10.5                           | 9.5                       | 21.1                    | 1.6               | 1.2           | 2.7       |
| Occupational role             | 10.1                        | 15.5                           | 9.8                       | 13.8                    | 1.9               | 2.7           | 4.2       |
| <i>Health-care programmes</i> |                             |                                |                           |                         |                   |               |           |
| Prevention                    | 14.1                        | 12.0                           | 9.3                       | 18.1                    | 2.0               | 4.7           | 4.2       |
| Development                   | 35.1                        | 24.4                           | 25.0                      | 29.8                    | 4.1               | 3.1           | 9.5       |
| Recovery                      | 42.4                        | 30.7                           | 32.4                      | 36.0                    | 4.6               | 8.6           | 10.1      |
| Adaptation                    | 50.8                        | 33.6                           | 30.2                      | 54.7                    | 4.3               | 6.9           | 11.5      |
| Maintenance                   | 18.1                        | 12.5                           | 12.0                      | 20.1                    | 1.9               | 3.1           | 6.3       |

registration period, the occupational therapist indicated that in 67% of the patients a positive result was achieved at the end of the treatment period. For one-third of the patients treatment was not completed at the end of the registration period. Treatment was continued in the clinical setting for 25% of these patients, and 44% were treated within day-care facilities. About one-quarter of these patients were referred to another institution for further occupational therapy treatment.

#### *Description of treatment goals, interventions and health-care programmes*

*Treatment goals.* Table I shows which treatment goals were chosen by the occupational therapists. The following goals were chosen most frequently: treatment of disabilities in personal care and motor impairments, followed by locomotor and domestic disabilities. The treatment goals have been described in detail in previous research[13].

*Interventions.* Table II shows the occurrence of interventions chosen by the occupational therapists. A total of 5507 interventions were chosen with the treatment goals

by the therapists. Activities on self-care and advice/instruction on aids were chosen most frequently. More than 60% of all interventions consisted of activities of personal care and advice/instruction given by occupational therapists.

*Health-care programmes.* The health-care programmes are shown in Table III. A total of 4917 programmes were chosen with the treatment goals by the occupational therapists. The adaptation and recovery programmes were chosen most frequently. The adaptation programme was chosen in more than two-thirds of the patients, while the recovery programme was chosen in more than half of the patients.

#### *Relationships between treatment goals, interventions and health-care programmes*

Table IV shows the occurrence of interventions with treatment goals and health-care programmes. An example will illustrate how to interpret the data in this table. With regard to the intervention "activities on self-care", it can be concluded that they were most often chosen to achieve the following treatment goals: motor impairments,

Table V. Main effects of logistic regression analysis (in terms of odds ratios) on treatment goals/health-care programmes and interventions<sup>a</sup>

|                               | Activities on self-care                       | Activities on productivity                    | Activities on leisure                         | Advice/instructions                           | Splinting                                     |
|-------------------------------|---|---|---|---|---|
| <i>Treatment goals</i>        |   |   |   |   |   |
| <i>Impairments</i>            |   |   |   |   |   |
| Motor                         |   |   | 2.60  | -1.53   | 10.85   |
| Sensory                       |   |   |   |   | 1.76  |
| Cognitive                     | 3.16  |   | 2.01  | -2.81   | -25.38  |
| <i>Disabilities</i>           |   |   |   |   |   |
| Basic skills                  |   | 1.64  |   |   |   |
| Endurance                     | -1.74   | 1.94  |   |   |   |
| Locomotor                     | 3.49  |   |   | 3.07  | -3.53   |
| Personal care                 | 8.09  |   |   | 1.64  |   |
| Domestic                      |   | 55.52   | 1.44  | 1.98  | -1.82   |
| Specific skills               |   | 3.88  | 1.74  |   |   |
| Leisure                       |   |   | 18.72   |   |   |
| <i>Handicap</i>               |   |   |   |   |   |
| Physical independence         | 3.33  |   |   |   | -2.32   |
| Mobility                      | 2.82  |   |   | 1.72  |   |
| Occupational role             |   | 12.65   |   | 2.09  |   |
| <i>Health-care programmes</i> |   |   |   |   |   |
| <i>Prevention</i>             |   |   |   |   |   |
| Developmental                 | 2.75  | 1.65  | 2.27  | 1.99  |   |
| Recovery                      | 2.41  | 1.83  | 3.00  |   | -2.62   |
| <i>Adaptation</i>             |   |   |   |   |   |
| <i>Maintenance</i>            |   |   |   |   |   |
| Constant                      | -2.14   | -3.32   | -3.00   | -0.70   | -2.73   |
|                               | Model X <sup>2</sup> :<br>377.53<br>(df = 18) | Model X <sup>2</sup> :<br>646.05<br>(df = 18) | Model X <sup>2</sup> :<br>368.91<br>(df = 18) | Model X <sup>2</sup> :<br>255.03<br>(df = 18) | Model X <sup>2</sup> :<br>234.09<br>(df = 18) |

<sup>a</sup> Only significant odds ratios are shown, in order to facilitate interpretation, df = degrees of freedom.

locomotor disabilities, disabilities in personal care and domestic disabilities. With this intervention the programmes of adaptation, recovery and development were most often chosen. (This analysis was also carried out only for the group of patients whose treatment was completed at the end of the registration period, but the results showed no substantial differences.)

The main effects for the data of Table IV were analysed with logistic regression. The results are shown in Table V. This analysis was carried out to test the relationship of treatment goals/health-care programmes with interventions. All overall tests were significant. Thus, the use of an intervention was dependent on which treatment goal/health-care programme was chosen. The table shows both the positive (odds ratios) and negative (inverse odds ratios) relationships between the goals/programmes and the interventions.

It can be seen that self-evident relationships existed between the three groups of activities and the treatment goals, e.g. activities on self-care were significantly related to disabilities in personal care. However, other more meaningful positive relationships (positive meaning that

the chance that the intervention was used in order to achieve a treatment goal is higher than the chance that the intervention was used without aiming at achieving that specific goal) were also found: activities on self-care were also applied with cognitive impairments; activities on productivity were applied with disabilities in basic skills, in endurance and in specific skills; leisure activities were applied with motor and cognitive impairments, with domestic disabilities and with disabilities in specific skills. Advice/instruction was applied with disabilities in personal care, with locomotor and domestic disabilities and with handicaps in mobility and occupational role. Splinting was applied with motor and sensory impairments. With three interventions—activities on self-care, on productivity and on leisure—a positive relationship existed with the developmental and recovery programmes, whereas the advice/instruction showed a positive relationship with the prevention, adaptation and maintenance programmes.

Table V also shows some negative relationships. A negative relationship means that the chance that the intervention was used in order to achieve a treatment

goal is lower than the chance that the intervention was used without aiming at achieving that specific goal. For example, the chance that splinting is used in order to achieve a treatment goal concerning cognitive impairments is 25 times lower than without trying to achieve that goal.

Interaction effects between each treatment goal, each health-care programme and each intervention were determined. Only 12 out of 83 interaction effects were significant. Because only very few significant interaction effects were found, they are not discussed here.

## DISCUSSION

The aim of this study was twofold: to describe characteristics of occupational therapy treatment and to analyse the relationship between treatment goals/health-care programme and interventions.

Hypotheses on the relationship between treatment goal interventions and health-care programmes were formulated at the beginning of the study. For the relationship between treatment goals and interventions it was expected that treatment goals at the level of impairments predicted the use of leisure activities and the use of splints. The relationship between (motor and cognitive) impairments and leisure activities and between (motor and sensory) impairments and splints was confirmed. It was also expected that the treatment goals at the level of disabilities and handicaps would predict the use of advice/instruction as an intervention. Five treatment goals at the level of disabilities and handicaps showed a relationship with the advice/instruction intervention (locomotor and domestic disabilities and disabilities in personal care and handicap in mobility and in occupational role). The hypotheses concerning the relationship between health-care programmes and interventions were confirmed. Both the recovery and developmental programmes predicted the use of the three "activity" interventions. The adaptation programme predicted the use of the "advice/instruction" intervention.

Various self-evident relationships between treatment goals and interventions were found. For example, domestic disabilities predict the use of activities on productivity; and disabilities in personal care predict the use of activities on self-care. These self-evident relationships indicate the need to further explicate interventions. With a further specification of interventions, factors affecting the choice of these interventions may come into focus.

Some negative relationships were found, mainly between goals and interventions. Such negative relationships were found for activities on self-care, advice/instruction and splinting. These negative relationships mean that occupational therapists clearly specify which interventions are *not* chosen to achieve these treatment goals. For instance, advice/instruction was not chosen as

an intervention to achieve treatment goals concerning motor and cognitive impairments.

These results lead to the overall conclusion that the choice of interventions by occupational therapists can—to a certain extent—be explained by the treatment goals and health-care programmes. Treatment goals and health-care programmes independently determine the choice of interventions. The combination of a specific treatment goal with a specific programme, does not seem to have an additional effect on the choice of interventions: almost no significant interaction between treatment goals and programmes were found.

Based on the relationships found in this study, several profiles of occupational therapy treatment can be distinguished. These profiles not only specify what occupational therapists do to achieve certain treatment goals, they also indicate what the underlying direction of the intervention is (i.e. what health-care programme is applied). This leads to the following profiles: the interventions "activities on self-care" and "activities on productivity" are mainly chosen to achieve treatment goals at the level of disabilities and handicaps, whereas the intervention "activities on leisure" is mainly chosen to achieve treatment goals at the level of impairments and disabilities. The application of all three types of activities is based on the developmental and/or recovery programme. The intervention "advice/instruction" is chosen to achieve treatment goals at the level of disabilities and handicap and the treatment is based on the prevention, adaptation or maintenance programme. This means that occupational therapists choose for "advice/instruction" in order to adapt the environment to the level of occupational functioning of the patient or to maintain the level of functioning of the patient or to prevent a (further) loss of functioning. The intervention "splinting" is used to achieve goals at the level of impairments.

A critical note can be made with regard to the registration form used in the present study. With our registration form, only the deficits in present occupational functioning are assessed. According to Reed & Sanderson[14], the initial screening carried out with a patient should aim at assessing the individual person's occupational performance in terms of general capacities and deficits in the occupational areas, both present and past. However, on our registration form only the deficits and not the abilities of the patients in the present were registered. Besides, only the observation of the therapist is involved. The involvement of the patient in the goal setting for therapy is not specifically explicated in the registration form. This information is assumed to be of great importance for the planning of the occupational therapy treatment. In future research these aspects should be added to the registration form. As an example, the Canadian Occupational Performance Measurement[16] should be mentioned.

## Items and sub-items/definitions of the occupational therapy diagnosis on the registration form

| Items                     | Sub-items/definitions  |
|---------------------------|--|
| <i>Impairments</i>        |  |
| Motor impairments         | Impairment of structure, impairment of function, amputation, coordination, other motor impairments   |
| Sensory impairments       | Sensory awareness, proprioception, pain, other sensory impairments   |
| Cognitive impairments     | Impairment of memory, impairment of thinking, neuropsychological function deficit, other cognitive impairments   |
| Intrapersonal impairments | Impairment of emotive and volitional functioning, impairment of behaviour patterns, impairment of perception, impairment of attention, impairment relating to location in time and space |
| Other impairments         |  |
| <i>Disabilities</i>       |  |
| Basic skills              | Motor skills, cognitive skills, psychological skills, interaction skills   |
| Communication             | Talking, understanding, reading, writing   |
| Endurance                 | Physical and psychological endurance   |
| Locomotor                 | Transfers, walking, traversing, transport  |
| Personal care             | Personal care, excretion, personal hygiene, dressing, feeding  |
| Domestic                  | Moderate household activities, heavy household activities, preparing meals, care of dependants, maintenance environment  |
| Specific skills           | Handling physical environment, budgeting   |
| Leisure                   | Includes sports, hobbies and playing games   |
| Relation                  | Making and maintaining contact with other individuals, functioning within a group  |
| <i>Handicaps</i>          |  |
| Physical independence     | Individual's ability to sustain a customarily effective independent existence  |
| Mobility                  | Individual's ability to move about effectively in his surroundings   |
| Social role               | Frequency and quality of an individual's participation in and maintenance of customary social relationships and activities   |
| Occupational role         | Individual's ability to occupy his time in the manner customary to his sex age and culture and functioning of the individual in daily work   |
| Family/household role     | Individual's ability to maintain an emotional bond with members of the family and to contribute to the functioning of the family   |

In addition, it should be noted that our study concerns clinical judgment. We have described which interventions are actually being used in practice and we have analysed why these interventions are chosen. Our study does not concern the appropriateness of the choice of interventions: we do not know whether the choice of interventions was appropriate. Our study does indicate the reasons for choosing an intervention. The results of our study may contribute to the definition of occupational therapy, in particular the reasons for choosing interventions. It can be concluded that both treatment goals and health-care programmes explain which interventions are applied in occupational therapy. Because a number of self-evident relationships exist, the interventions need further investigation and explication in future research. This applies in particular to "activities". Furthermore, the process of setting treatment goals should be addressed and explicated in future research. This will contribute to the understanding of which factors determine the choice of interventions in occupational therapy.

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