Assessment of Neurological Interventions in Occupational Therapy Practice

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Background

Survivors of stroke make up the most common diagnostic group served by occupational therapists (OTs).

Approximately 50 to 60% of stroke survivors are only moderately or minimally impaired, and previous research indicates that these individuals may greatly benefit from rehabilitation services because of their potential to regain function.

Occupational therapists can facilitate rehabilitation after stroke by using a mixture of remediation, compensatory, and preventative theories to increase independence.

Neurological theories address motor and functional deficits such as spasticity, hemiplegia, and regaining motor control.

The following theories were chosen based on their prevalence in the research and their effectiveness in stroke rehabilitation.

The Bobath approach, also known as Neuro-Developmental Treatment (NDT), is focused on eliminating abnormal movements and restoring normal movement patterns in patients with acquired hemiplegia.

In the Task-Oriented neurological approach patients practice personally meaningful, context-specific motor tasks, and receive some form of feedback.

Brunnstrom focuses on using reflexes and primitive movement patterns to facilitate the recovery of voluntary movement.

The Proprioceptive Neuromuscular Facilitation (PNF) approach stresses stimulation of the proprioceptors to promote muscular movement patterns in context-specific tasks.

Constraint-Induced Movement Therapy (CIMT) is focused on therapeutic activities which restrain the unaffected arm forcing the use of the affected arm in daily activities.

Neurological theories used by occupational therapists address interventions that provide different strategies and not the broad theory.

Knowledge of which neurological occupational therapy intervention combinations are most successful in rehabilitation outcomes is not yet known.

Previous research on the use of neurological theories has been conducted outside the United States or has been aimed at finding the duration and frequency of specific rehabilitation strategies and not the broad theory.

Methods

Researchers developed a questionnaire consisting of demographic questions and statements about specific interventions found within each theory domain.

The theory was not identified to the participant.

Responses were recorded on a 4-point Likert scale defined as “Always, Sometimes, Rarely, and Almost Never.”

The inclusion criteria required participants to be practicing occupational therapists who had experience in stroke rehabilitation within the last 3 years since researchers were interested in current clinical practice.

E-mails were sent to occupational therapy practitioners in multiple settings and states. The email contained a link to the questionnaire, the purpose of the study, confidentiality information, and informed consent agreement.

The survey link took participants to Zoomerang which collected anonymous responses for the researchers and filled responses as participants completed the survey.

The final number of participants who met the inclusion criteria and completed all demographic information was known.

Data was converted to and analyzed using SPSS for Windows (Version 16.0; SPSS, Inc., Chicago).

Demographic Data

Table 1

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>N = 32</th>
</tr>
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<tbody>
<tr>
<td>Practicing State</td>
<td>KS (37.5%), MO (12.5%), CA (9.3%), TX (3.1%), WA (3.1%)</td>
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<tr>
<td>Date of OT Graduation</td>
<td>Mean= 1989</td>
</tr>
<tr>
<td>Years of Experience</td>
<td>Mean= 12.9 years</td>
</tr>
<tr>
<td>Type of Degree</td>
<td>BS (51.6%), MOT (32.3%), COTA (16.1%)</td>
</tr>
</tbody>
</table>

Results

Figure 1

Types of Settings

<table>
<thead>
<tr>
<th>Number of Interventions</th>
<th>Other</th>
<th>Occupational Therapy</th>
<th>Peds</th>
<th>SNF</th>
</tr>
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Figure 2

Neurological Theories

Table 2

<table>
<thead>
<tr>
<th>Neurological Theories</th>
<th>N (%)</th>
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<tbody>
<tr>
<td>PNF</td>
<td>40.6%</td>
</tr>
<tr>
<td>Brunnstrom</td>
<td>31.2%</td>
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<tr>
<td>NDT</td>
<td>7.8%</td>
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<tr>
<td>CIMT</td>
<td>20.9%</td>
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</table>

Discussion

The results of the analyzed responses show occupational therapists are using a variety of theories in stroke rehabilitation. Although the means were similar, Task-Oriented techniques were most often used by occupational therapists. This is a positive sign for the profession because it indicates that OT interventions are functionally based.

CIMT was used the most in community settings. Researchers believe this is due to the flexibility and increased treatment time in community settings compared to other settings.

Because the year of graduation and total years of experience did not have a significant effect on the therapists’ theory use, findings suggest that OTs have continually updated interventions to follow evidence based practice.

For future studies the researchers recommend:

- Increase sample size of stroke rehabilitation OTs and broaden locations for participant recruitment.
- Compare what interventions OTs are claiming to use, to what they actually implement by observing OTs administer treatment.
- Compare theories used in practice to theories being taught in OT programs.

Conclusions

This study found that occupational therapists are using a variety of neurological theories and intervention techniques across settings.

Researchers also concluded that occupational therapists have continually updated interventions to follow evidence based practice.

Strong assumptions cannot be made due to the small sample size and limited regional participants across the country.

Acknowledgements

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