

CLINICAL PRACTICE

Occupational therapy and physiotherapy benefit the acute patient pathway: A mixed-methods study

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Abstract

Introduction: Occupational therapists and physiotherapists are increasingly being employed in the emergency departments (ED), all though evidence is insufficient. This study aims to explore the impact of therapeutically services in the acute inpatient ward in order to find services of greatest value.

Methods: A mixed-methods study using audit, questionnaires and focus group interviews. The participants were physicians and nurses from an ED and three collaborating departments. In the audit and the interviews saturation was achieved and the questionnaire was distributed to the entire study population.

Results: An audit revealed 114 therapist's notes used by interdisciplinary partners. On a numerical scale (1-10), the overall impact of occupational therapy was 7.4 (CI 6.9-7.9), of physiotherapy 8.3 (CI 7.8-8.7). Concerning contemplated and actual use of therapeutic services the physicians found the greatest usefulness to the discharge and the nurses to care. The interviews showed that the presence of therapist yield a broader perspective on the patient and greater flexibility in the patient pathway.

Conclusion: According to the interdisciplinary partners, therapists represent a valuable contribution to patient pathway in ED. The benefits are especially related to quick provision of aids and appliances, overview of patient's physical abilities, early mobilization and relay of information.

Key words

Occupational therapy, Physiotherapy, Emergency department, Acute patient pathway

1 Introduction

In Denmark, as well as in other European countries, recent decades have seen changes in the organization of emergency departments (EDs) aimed at increasing the quality of the acute patient pathway. Denmark presently has some 20 EDs with an emergency room, a reception unit, and an inpatient ward in which patients are admitted for up to 48 hours if further examinations are required ^[1, 2].

While the acute patient pathway has traditionally involved only the medical and the nursing professions, the changes have increasingly brought occupational therapists and physiotherapists into EDs; in Denmark particularly with responsibilities

in the inpatient ward. However, the impact of occupational and physiotherapist competencies on the patient pathway is insufficiently documented.

Typical occupational therapy services in fast tracks include the assessment of older patients' self-care and their need for aids and appliances in the home, in preparation for discharge. Referral assessments for placement in a community nursing home also fall within their remit [3-8]. While occupational therapy has a documented positive impact on the ability of older, vulnerable patients to cope after discharge [9], physiotherapy skills have been shown primarily to contribute to diagnosis, mobilization, discharge planning, and the transferral of patients [10-14]. Existing studies have mainly surveyed or audited therapists' work in order to gain knowledge of the therapeutic action [3-6, 10, 15, 16], or they have studied organizational issues such as waiting time assessment, patient satisfaction, therapists' competencies, referral patterns, etc., and have primarily related to emergency rooms [11-14, 17-20].

This study evaluates the first year after introduction of occupational therapy and physiotherapy services in an acute inpatient ward. It is the first to focus on the interdisciplinary partners' experience of collaboration with occupational therapists and physiotherapist in the acute team.

This study aims to explore the impact of therapeutically services in the acute inpatient ward in order to find services of greatest value.

The researches questions, the study intend to answer are:

- What is the value of therapist in the acute care pathway?
- Where is the therapy services considered of most value in the acute patient pathway?
- Which therapy services are considered most valuable for the patient pathway?

2 Methods

The study was designed as a mixed-methods study using audit, questionnaires and focus group interviews. The setting was a medium-sized regional hospital admitting some 10,000 emergency patients a year [21] from a mixed urban and rural district, mainly with orthopaedic, medical, or organ disorders.

For the audit, saturation was achieved after 100 journals and in relation to focus group interview saturation was achieved, as well. According to the questionnaires, the sample comprised all physicians and nurses employed in the ED and the department of orthopaedic surgery, medical department or department of surgery.

2.1 Auditing

In order to assess whether patient records with input from occupational therapists and physiotherapists were used by physicians and nurses, an audit was carried out. One hundred journals were assessed, 50 of which included occupational therapy notes and 50 with physiotherapy notes. The auditing took place between March and June 2012. The inclusion criteria: were similar wording or reference to the therapist note and furthermore, that the physician medical record or the nurses' plans should be written later than the therapist note.

Auditing was conducted by three occupational therapists and three physiotherapists; all identified records were categorized in a matrix according to which part of the patient pathway the record concerned: 1) diagnosis, 2) treatment/ care, 3) discharge, including cross-sector coordination, or 4) transferral. The results are reported by proportions.

2.2 Questionnaire survey

A questionnaire survey was conducted between September and October 2012 to elicit physicians' and nurses' assessment of occupational therapists' and physiotherapists' competencies in relation to the acute patient pathway. The sample of the survey comprised all physicians and nurses from the ED and the following collaborating departments: department of orthopaedic surgery, medical department or department of surgery. The questionnaire was developed on the basis of topics shown by previous studies to be essential [3, 6, 7, 9, 12, 15, 16, 19, 22] and knowledge obtained from the audit. A face and content validation using a Delphi procedure was subsequently undertaken.

The questionnaire used with ED staff consisted of 31 items; with the collaborating departments, 24 items. The following domains were covered: 1) demographic information, 2) impact of therapy, 3) utility of therapy, 4) actual use of therapy, 5) utility of specific therapeutic services (8-10 items each), and 6) impact, according to medical speciality (6 items for ED professionals only). Questions eliciting information on the utility and actual use of therapy (domains 3 and 4) included four composite categories: 1) diagnosis, 2) treatment/care, 3) discharge, including cross-sector coordination, and 4) transferral. For all but three responses a 5-point Likert scale was used (options: "To a large extent", "To some extent", "To a lesser extent", "Not at all", or "Don't know"). The demographic categories were age, gender and seniority. The impact of therapy was assessed using a numerical scale (1-10). The results are presented by proportions and as themes. All statistical analyses were performed using Stata (StataCorp. 2001. Statistical Software: Release 12. College Station, TX: Stata Corporation).

2.3 Focus group interviews

In order to explore physicians' and nurses' experiences of occupational therapists' and physiotherapists' competencies, two semi-structured focus group interviews were conducted in November 2012. Six respondents (one physician, five nurses) from the medical department and the department of orthopaedic surgery were interviewed together; five respondents from the ED (two physicians, three nurses) took part in a separate interview. The interview guide was developed on the basis of experience gained from previous studies and the results of the auditing and questionnaire survey. The wordings of the interview questions were as follows: 1) *Please describe a patient pathway involving collaboration with an occupational therapist or a physiotherapist*, 2) *Please give examples of patient pathways in which the involvement of occupational therapists or physiotherapists had an impact*, 3) *Please describe what you consider as the impact of occupational therapists or physiotherapists in relation to a) diagnosis, b) treatment/care, c) discharge and cross-sector coordination or transferral*, and 4) *How do you access occupational therapists' or physiotherapist's assessments?*

The interviews were recorded for subsequent verbatim transcriptions, which were analysed in a five-stage process: 1) Reading for overview, 2) Identification of natural unities as expressed by the respondents, 3) Theme formation, 4) Then asking: What is the impact of occupational therapy and physiotherapy? and 5) Formulation of themes in descriptive statements [23]. Saturation was achieved after two interviews.

2.4 Ethical considerations

Respondents received written and oral information on the project, after which they signed an informed consent form. All data obtained in the survey and focus group interviews were treated confidentially and anonymized to preclude identification. The study was registered with the Danish Data Protection Agency.

3 Results

3.1 Auditing

In a sample of 100 patient records 114 notes written by either an occupational therapist or a physiotherapist were identified; 47 of the notes originated with an occupational therapist, 67 with a physiotherapist. Of the occupational therapy

notes, eleven were found in the physicians' medical records, five (10%) of those in the discharge letter, the remaining 36 in the nurses' plans. Fourteen (28%) of those had formed part of a plan sent to municipal services. Twenty-six of the physiotherapy notes were found in the physicians' medical records and 41 in the nurses' plans. Eleven (22%) of the notes were found in the discharge letter. For the nurses, 23 (46%) were found in the care plans.

Table 1. Identified therapists' notes among physicians and nurses

	Identified records no. (%)				Total
	Diagnosis/ Examination	Treatment/care	Transfer	Discharge letter/ Nurses' plans ¹	
Occupational therapy (N = 50)					
Physicians	2 (4 %)	4 (8 %)	0	5 (10 %)	11
Nurses	2 (4 %)	10 (20 %)	10 (20 %)	14 (28 %)	36
Physiotherapy (N = 50)					
Physicians	5 (10 %)	10 (20 %)	0	11 (22 %)	26
Nurses	7 (14 %)	23 (46 %)	3 (6 %)	8 (16 %)	41
Rehabilitation plan ²					
Occupational therapy	10 rehabilitation plans by occupational therapist				
Physiotherapy	9 rehabilitation plans by physiotherapist				

Notes. 1: Hospital sends nursing plan to home municipality.

2: Medical referral for training in the municipalities, a statutory medical assessment of the need for training, typically prepared by a therapist.

3.2 Questionnaire survey

Of the 249 questionnaires distributed, 139 (55.8%) were completed. Figure 1 shows response rate by department. Among non-responders (N = 111) 38% were physicians, 62% nurses.

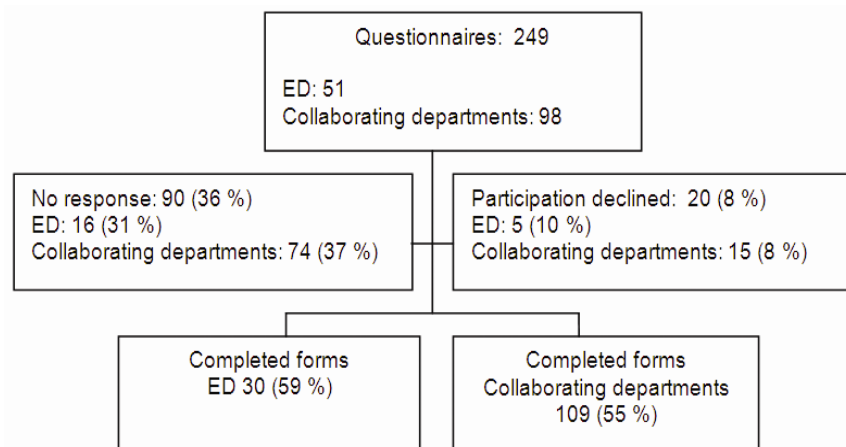


Figure 1. Completed questionnaires

In the ED, 73% of the responders (N = 30) had more than one year of seniority while 44% of the responders from the collaborating departments (N = 106) had more than five years of experience. Table 2 shows response rates by gender, profession, experience, and department.

Table 2. Responders, by gender, profession, and seniority

	ED no. (%)	Collaborating departments no. (%)	
Women (N = 30)	28 (93%)	Women (N = 107)	84 (79%)
Profession (N = 30)		Profession (N = 107)	
Physicians	4 (13%)	Physicians	41 (38%)
Nurses	26 (87%)	Nurses	66 (62%)
Seniority in department (N = 30)		Seniority in department (N = 106)	
≤ 6 months	6 (20%)	≤ 1 year	19 (18%)
6 months – 1 year	2 (7%)	1 – 5 years	40 (38%)
≥ 1 year	22 (73%)	≥ 5 years	47 (44%)

3.3 Occupational therapy

Overall, the responders rated the impact of occupational therapy at 7.4 (CI 6.9-7.9) (N = 104); for responders affiliated with the ED (N = 28) a mean of 7.6 (CI 6.5 - 8.7) was found. The mean for collaborating departments was 7.3 (CI 6.7 - 7.8) (N = 76). More details are shown in Table 3.

Table 3. Overall assessment of impact of occupational therapy and physiotherapy

Occupational therapy	mean (CI)		
All responders (N = 104)	7.4 (CI 6.9-7.9)		
Physicians (N = 31)	7.1 (CI 6.2-7.9)		
Nurses (N = 73)	7.5 (CI 6.9-8.1)		
	ED (N = 28)	7.6 (CI 6.5-8.7)	
		Orthopaedic surgery (N = 32)	7.2 (CI 6.5-8.7)
		Medical (N = 37)	7.6 (CI 6.9-8.3)
	Collaborating departments (N = 76)	7.3 (CI 6.7-7.8)	
Physiotherapy	mean (CI)		
All responders (N=109)	8.3 CI (7.9-8.7).		
Physicians (N=36)	7.5 (CI 6.8-8.2)		
Nurses (N=73)	8.6 (CI 8.1-9.1)		
	ED (N=28)	8.1 (CI 7.1-9.0)	
		Orthopaedic surgery (N = 40)	8.3 (CI 7.5-9.0)
		Medical (N = 34)	8.2 (CI 7.5-8.9)
	Collaborating departments (N = 81)	8.3 CI (7.8-8.8).	

For physicians, the greatest value of occupational therapy services related to discharge (79%). The nurses found the greatest value in relation to care (81%) (see Table 4).

Table 4. Contemplated use of occupational therapy or physiotherapy no. (%)

	Diagnosis/examination		Treatment/care		Discharge	
	To a large extent/ to some extent	Don't know	To a large extent/ to some extent	Don't know	To a large extent/ to some extent	Don't know
Occupational therapy						
Physicians (N = 42)	22 (52%)	10 (24%)	28 (67%)	9 (21%)	33 (79%)	7 (17%)
Nurses (N = 90)	63 (70%)	13 (14%)	73 (81%)	10 (11%)	69 (77%)	12 (13%)
Physiotherapy						
Physicians (N = 40)	31 (78%)	3 (8%)	34 (85%)	5 (13%)	34 (85%)	4 (10%)
Nurses (N = 79)	70 (89%)	4 (5%)	74 (94%)	3 (4%)	71 (90%)	5 (6%)

With respect to the actual use of therapy services, 69 % of the physicians answered that they had used occupational therapy services (“To a large extent”, or “To some extent”) in relation to discharge.

As shown in Table 5, the highest proportion of positive responses among nurses related to care (77%).

3.4 Physiotherapy

Overall, the responders rated the impact of physiotherapy at 8.3 (CI 7.8-8.7) (N = 109); the score for ED responders (N = 28) was 8.1 (CI 7.1-9.0); for collaborators it was 8.3 (CI 7.8-8.8) (N = 81).

The physicians’ saw the greatest value of physiotherapy in relation to both treatment and discharge (85%). Nurses found physiotherapy to be of greatest value for care (94%) (see Table 4).

Table 5 shows that among physicians the highest proportion of positive responses to the actual use of physiotherapy services was found in relation to discharge (80%). The corresponding figure for nurses related to care (94%).

Table 5. Actual use of occupational therapy and physiotherapy no. (%)

	Diagnosis/examination		Treatment/care		Discharge	
	To a large extent/to some extent	Don’t know	To a large extent/ to some extent	Don’t know	To a large extent/ to some extent	Don’t know
Occupational therapy						
Physicians (N = 42)	19 (45%)	8 (19%)	22 (52%)	8 (19%)	29 (69%)	8 (19%)
Nurses (N = 87)	58 (67%)	12 (14%)	67 (77%)	10 (11%)	65 (75%)	12 (14%)
Physiotherapy						
Physicians (N = 40)	27 (68%)	4 (10%)	31 (78%)	4 (10%)	32 (80%)	4 (10%)
Nurses (N = 79)	67 (85%)	4 (5%)	74 (94%)	3 (4%)	70 (89%)	4 (5%)

3.5 Focus group interviews

Two one-hour focus group interviews were conducted with a total of 11 respondents representing the ED, the department of orthopaedic surgery and department of medicine. Four themes emerged from the data analysis:

- Patient flow
- Increased safety for patients and staff
- The team’s overall competencies
- Relay of information

3.6 Patient flow

The responses indicated that the presence of occupational therapists and physiotherapists in the acute patient pathway is likely to help shorten hospital stays as the assessment of the patients’ functional status had led to speedier provision of aids and appliances and earlier mobilization.

The assessment of the need for alterations in the home facilitated intersector coordination and was furthermore considered to minimize barriers to discharge.

I think it makes for faster discharge when occupational therapists and physiotherapists are around the patient immediately. As soon as the therapists arrive, a plan is drawn up, for example to mobilize the patient three times a day, and how that’s done. Patients can get out of bed sooner. They quickly get their aids and appliances – so they can be discharged sooner (ED nurse).

A decline in the readmission rate was also mentioned as a possible outcome of introducing occupational therapy in the ED.

The patients can't be discharged unless they are provided with the relevant aids and appliances and the domestic situation is sorted out. If that doesn't work they will be readmitted (ED physician).

The therapists' functional assessments and the information provided about the activities of daily living were seen to have a positive influence on diagnosis and treatment.

Information about the activity of daily living is essential and it is very much an occupational therapy competency. How does the patient handle the situation at home? (Physician from collaborating department)

The physiotherapists' presence in the ED were highly valued by the informants as their competencies in relation to mobilization had raised the patients' level of physical activity during hospitalization

Considered by the nurses, this was important as patients' interpretation of exhortations for physical activity would typically depend on the profession; e.g. if a nurse asks patients to collect their own lunch it may be perceived as poor service while the same request from a physician or physiotherapist would likely be perceived as a rehabilitative measure.

Early mobilization was also an important signal for patients who had been transferred to other departments.

Sometimes, the elderly have been lying in bed for quite some time before hospitalization, and therefore immediate in-hospital mobilization is a very important signal to pass on. As a matter of fact, I'm confident that it will be an advantage for the receiving department (Physician from collaborating department).

3.7 Increased safety for patients and staff

Occupational or physical therapists' assessments are likely to increase safety. The interdisciplinary partners believed that the therapists' assessments had given a relevant overview of patients' physical abilities, which they found to be essential for the timing of transferral.

“... take the assessment of the ability to walk – it's useful to know if it is necessary to use the lift or the patient can use a walker (Nurse from collaborating department).

The informants emphasized the value of occupational therapists' attention to the fall hazard. Knowledge of the potential risk led to increased awareness of the problem. Access to physiotherapy competencies also gave the informants an increased sense of security in handling patients with pain.

When we discuss mobilization the presence of a physiotherapist gives me a sense of security in handling patient' with musculoskeletal pain (ED nurse).

3.8 Team competencies

The respondents emphasized that teamwork among staff with different competencies and at different stages had provided a broader perspective on the patient. One of the merits of therapeutic assessments was the fact that it would typically take place in activities of daily living.

There is a difference – as doctors we don't take a walk while talking with the patient. We don't get to watch the patient doing everyday chores so we can easily overlook important factors or things that are developing (ED physician).

3.9 Relay of information

Therapeutic assessments would typically be communicated verbally. Respondents considered this to be the best way as it allows more detailed information.

I prefer verbal communication for complex situations. You know, the therapist may say: “He can actually walk, but he must be handled in such and such a way ...” (Nurse from collaborating department).

Therapists’ verbal communication tasks included the relay of information between the ED and collaborating wards. Their insight into work in the collaborating departments was considered useful for the assessment of transferrals: *I think that occupational therapists help us get the patients transferred to the right department, to identify those who belong in geriatrics* (ED nurse). The knowledge gained from therapeutically assessing patients in the ED may be essential also for the receiving department.

4 Discussion

This study has demonstrated that occupational therapy competencies and physiotherapy competencies together, as well as separately, are beneficial to the acute patient pathway. A new aspect introduced by our study is that therapy services in the ED benefit not only discharged patients but also patients who have been transferred to another department. Collaborating physicians and nurses indicate that the assessment of patients’ functional status by occupational therapists and physiotherapists give a number of valuable contributions:

- Speedier provision of aids and appliances
- Earlier mobilization
- Information on the patient’s domestic situation of relevance to diagnosis and discharge
- Improved patient safety due to the inclusion of fall hazard appraisal
- Increased safety in patient transferral
- Information on the patients’ training and rehabilitation needs of relevance to cross-sector coordination

Whereas several of the above findings are corroborated by earlier work ^[3, 4, 9, 15, 16, 19, 24], the inclusion of interdisciplinary partners’ views and assessments offers new insights along with the theme increased safety for patients and staff.

The partners see the diversity in health care professionals’ qualifications as a very important aspect as it provides multiple perspectives because of the heterogeneity of their methods and tools. Another effect of this diversity is that assessments are made at different times of the day and at different stages of the patient pathway. The importance of this difference in approaches depends on the target group as it is difficult to compare the needs of old frail patients with the disease-oriented perspective in an ED, as research has shown ^[25, 26]. The findings of this study are thus corroborated by other studies that have emphasized the advantage of multidisciplinary perspectives on vulnerable groups such as the elderly ^[3, 4, 6, 25, 27-29].

Our study also shows that therapy services benefit the acute patient pathway, whether at discharge or at transferral of patients. In the latter case, the benefits are even more pronounced when the therapist has duties in both the ED and collaborating departments.

Finally, the study has shown the potential for more intensive use of the services of both occupational therapy and physiotherapy in EDs. This is reflected in responses showing that the therapeutic competencies were underused.

4.1 Occupational therapy

This potential for development of occupational therapy shown by our study relates mainly to treatment. This observation is based on the finding that the interdisciplinary partners’ use of the occupational therapists’ competencies related mainly to 1) care and 2) discharge, including cross-sector coordination. This result is consistent with previous research on occupational therapy in acute settings ^[3, 4, 7, 9, 22, 30]. The interdisciplinary partners’ highlighting of the relevance of

information about the domestic situation and provision of aids and appliances are also in accordance with other studies [3, 5, 7, 9].

4.2 Physiotherapy

Physio-therapeutic services may be developed mainly in relation to diagnosis/examination as these competencies were used primarily in relation to 1) treatment/care and 2) discharge, including cross-sector coordination. The documented use of physiotherapy competencies is consistent with findings in international studies [15, 19, 30]. In relation to ED outpatients, the results are unsurprising as several small-scale studies have shown that experienced physiotherapists are well qualified for the diagnostication of patients with soft tissue injuries [31].

In keeping with findings by other studies, health care professionals in the ED highlighted services such as mobilization and the provision of walking aids [10, 12, 15].

Further study is needed to measure the effect of occupational therapy and physiotherapy as the descriptive or limited scope of this and earlier work precludes conclusive interpretation [4-7, 9, 10, 12, 13, 15-17, 19, 30].

4.3 Study limitations

The cross-sectional study design provides insight into a restricted period with many concurrent changes. Due to contextual and organizational differences, the descriptive approach offers limited opportunity for generalization to other EDs. Despite the face and construct validation of the questionnaire survey, the validity analyses revealed some weaknesses. A decrease in response frequency for the later items suggests that the questionnaire was taxing. Moreover, the relatively high proportion of undecided respondents may be a reflection of their limited experience. The relatively scarce use of occupational therapy services may also have played a role. We nevertheless consider the risk for biased results to be minimal as the mixed-method design delivered consistent and mutually supportive results. Despite these limitations we believe our study offers findings of great relevance to this new field for the occupational therapy and physiotherapy professions.

5 Conclusion

According to health care professionals the competencies of occupational therapists and physiotherapist in the acute inpatient ward give valuable contributions to fast-track treatment and care, for example by offering new perspectives on the patient and greater flexibility in patient pathways. We also found that therapy services are considered beneficial, especially when patients are discharged or transferred. According to the physicians, the contemplated and actual use of occupational therapy and physiotherapy are considered of greatest value in relation to discharge. Asking the nurses, the usefulness is related to care. Overall, provision of aids and appliances and mobilisation is considered most valuable for the patient pathway.

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