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The road to successful geriatric rehabilitation

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CHAPTER 8

Summary

INTRODUCTION

Due to the rising life expectancy and improved treatment possibilities of chronic illness and acute care, the group of older persons will continue to increase worldwide. Concurrently, the number of older people with multi-morbidities in acute care will also increase. Geriatric rehabilitation is important for this specific population, because it has a positive effect on the improvement of functioning after hospitalization, and leads to less re-admissions to nursing homes/hospitals and to lower mortality rates.

Geriatric rehabilitation consists of two main characteristics. First, geriatric rehabilitation is a multidisciplinary set of evaluative, diagnostic and therapeutic interventions with the purpose to restore functioning or enhance residual functional capacity in older people with disabling impairments. Second, geriatric rehabilitation treatment has a multidisciplinary patient-centered approach.

Internationally, post-acute care rehabilitation is provided in different settings. In the Netherlands, geriatric rehabilitation is provided in the post-acute care setting of skilled nursing facilities (SNFs). However, because geriatric rehabilitation is a relatively young field of research we are still in the early stages of exploring which aspects of structure and processes may help to improve successful geriatric rehabilitation outcomes.

There is a lack of well-conducted studies focusing on i) quality improvement of geriatric rehabilitation, and ii) evaluating successful geriatric rehabilitation outcomes, such as discharge to home with a higher level of physical functioning, and optimizing the length of stay by improvement of the rehabilitation processes.

The general aim of this thesis is to investigate various aspects of the structure and processes in geriatric rehabilitation in relation to the outcome of successful rehabilitation.

PART ONE. ASPECTS OF SUCCESSFUL GERIATRIC REHABILITATION

Chapter 2 focuses on the association between organizational structure (patient volume and service concentration) as a proxy for specialization, and geriatric rehabilitation outcomes, because little is known about the optimal organization of care. In a post-hoc analysis of a national multicenter retrospective cohort study in 88 SNFs, the relationship between patient volume and service concentration on the outcome (short length of stay in the SNF and discharge home) was examined. SNF characteristics were obtained by structured telephone interviews with facility managers. Volume was based on the number of discharges in a 3-month period and categorized in low, medium, and high-volume facilities. Concentration was defined as 80% or more of the patients in a geriatric rehabilitation ward that consists of 1 or 2 diagnostic groups. An additional prerequisite was that the facility should have a minimum of 10 rehabilitation beds. From 88 facili-

ties, 2269 geriatric rehabilitation patients with a mean age of 78.2 years were included. This study showed that high service concentration, but not volume, may favor a shorter length of stay and discharge home for patients with total joint replacement. However, this relationship was not found for patients with traumatic injuries or stroke. In addition, trauma patients in a concentrated ward had a greater chance to be discharged to home compared with trauma patients in a non-concentrated ward. More research is required to explore whether the concentration of services and patient volume are a good proxy for specialization, and to establish which components of organizational structure are beneficial to successful geriatric rehabilitation in terms of cost-effectiveness and successful patient outcomes.

Because joint replacements are 'planned care', in contrast to acute events such as stroke or trauma, this group of patients are particularly suitable for preoperative screening and assessment of overall functioning. In **Chapter 3**, in a prospective observational cohort study, we investigated whether preoperative strength of the muscle groups of the lower extremity is associated with postoperative functional recovery after total hip replacement. A total of 55 patients with a mean age of 73 years participated. Baseline measures within 2 weeks pre-operatively, and follow-up at 6 and 12 weeks postoperatively, included isometric strength measurement of the hip and knee musculature. Functional outcome was tested using performance-based (functional mobility) and self-report measures (physical functioning, mental health and pain). The conclusions drawn from this study are that a preoperative greater knee extensor strength of the operated side is associated with better physical functioning (WOMAC-PF) at 12 weeks postoperatively, in patients undergoing a total hip replacement. In that study, no association was found with the performance-based outcome measures. Insight into (pre-operative) predictors for functional outcome in geriatric rehabilitation provides information on rehabilitation potential and can help improve discharge planning.

PART 2. INITIATIVES TO IMPROVE GERIATRIC REHABILITATION OUTCOMES

The overall organization of geriatric rehabilitation is a complex care process that suffers from fragmentation of care because of the many different medical specialists, professionals and settings involved. Although, internationally, attempts have been made to improve the quality of the care processes, they did not specifically address geriatric rehabilitation patients and did not reflect the post-acute care setting. In addition, little is known about the perspectives of professionals, patients and informal caregivers on the quality of care during these initiatives.

The Dutch Ministry of Health, Welfare and Sport initiated a national program ('*Proeftuinen geriatrische revalidatie*') to improve quality of care through the development of

geriatric rehabilitation services. The 'Synergy and Innovation in Geriatric Rehabilitation (SINGER) study' is a prospective longitudinal study performed during the implementation of this national program to improve quality geriatric rehabilitation care, in which 16 SNFs participated.

The first part of the SINGER study (**Chapter 4**) describes changes in the geriatric rehabilitation service delivery process as experienced by professionals (elderly-care physicians, physiotherapists and nursing staff), as well as by patients and their informal caregivers. For three consecutive cohorts, the professionals rated four domains of health service delivery (i.e. alignment with patients' care needs, care coordination, team cooperation, and quality of care) at admission and at discharge for a total of 1075 patients. In addition, these patients (median age 79 years) and their informal caregivers rated their own experiences on these domains 4 weeks after discharge. During the national program, small positive effects were found in team cooperation (including assessment for intensive treatment and information handover between professionals). Fewer improvements were found in alignment with patients' needs, care coordination, and care quality. At 1 year after implementation of the national program, patients' and informal caregivers' perceptions of the geriatric rehabilitation service delivery process were similar. This study provides insight into the main goals of development in optimizing integrated care formulated by the participating organizations.

The second part of the SINGER study (**Chapter 5**) describes patient outcomes of successful rehabilitation by comparing two consecutive cohorts; i.e. at the start of implementation (n=386) and at 1-year post-implementation of this national program (n=357). Included were 743 patients (median age 80 years) indicated for geriatric rehabilitation and their healthcare professionals (elderly care physicians, physiotherapists and nursing staff) from 16 SNFs. Successful geriatric rehabilitation was defined as independency in activities of daily living (ADL) and discharge to home after a short length of stay in the SNF. One year after implementation of the Dutch national program, there was 12% more independency in ADL at discharge, whereas the combined outcome of successful geriatric rehabilitation (independency in ADL, discharge home, short length of stay in the SNF) showed significant improvement only in patients with traumatic injuries (**Chapter 5**). This combined outcome measure (independency in ADL, discharge home, short length of stay in the SNF) is an overall measure for the total population receiving geriatric rehabilitation. This also enables to compare performances within geriatric rehabilitation diagnostic groups and between facilities, when adjusted for case-mix characteristics. For the future, an even more desirable outcome would also include the 'patient's perspective' on the outcome of successful rehabilitation (i.e. goal attainment scaling) on the functional and participation level.

In geriatric rehabilitation, early discharge planning is an important patient care process that can affect patient outcome, especially if they have low nursing support needs.

Timely home discharge is thought to improve functioning in ADL after discharge and reduce hospitalization rates, especially in patients with stroke and traumatic injuries. In case a few nursing support tasks are required during the evening and night, these could be dealt with by a homecare provider or informal caregiver. Geriatric rehabilitation can then be continued with outpatient or home rehabilitation. However, no instruments were available to adequately evaluate earlier discharge to home based on the patient's need for supporting nursing tasks.

The BACK-HOME study **(Chapter 6)** evaluates if weekly scoring of a nursing support scorecard in the evenings/nights and discussing the results in the multidisciplinary team meeting, leads to potential differences in discharge of geriatric rehabilitation patients. The BACK-HOME study is a quasi-experimental study with a reference cohort (n=200) and a BACK-HOME implementation cohort (n=283), in which four SNFs participated. This study concludes that structured scoring of supporting nursing tasks in geriatric rehabilitation may lead to earlier discharge from an SNF to home, if no home adjustments of the home environment are required. The use of a nursing support scorecard may help target which patients have the potential to be discharged home, and to discuss the results in a multidisciplinary team meeting to establish if discharge home planning is really feasible. This implies that nursing staff can play a prominent role in early discharge planning. However, more research is needed to explore the potential benefits of early discharge in geriatric rehabilitation on long-term outcomes on patient functioning, participation and the amount of healthcare resources used.

FINALLY

Because geriatric rehabilitation is a relatively young field of research, more evidence-based practice, expertise and knowledge exchange is required. When aiming to further develop the quality of post-acute geriatric rehabilitation, more research/development on different aspects of structure and processes is needed such as: coordinated multidisciplinary care, early discharge planning and assessment of barriers for discharge, and the development of systematic evaluation with standardized measures. In addition, development of patient-centered care with active involvement of the patient and informal caregiver in goal setting, reporting on outcomes and decision-making, may be beneficial to optimize the quality of care. A good infrastructure for research and development in SNF (such as a university nursing home network) is needed to enable coordinated research in geriatric rehabilitation and to implement research outcomes into daily practice.