

Rehabilitation Current Awareness Bulletin

March 2021

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Title: Environmental Factors Affecting Early Mobilization and Physical Disability Post-Intensive Care: An Integrative Review Through the Lens of the World Health Organization International Classification of Functioning, Disability, and Health.

Citation: Dimensions of Critical Care Nursing; Mar 2021; vol. 40 (no. 2); p. 92-117

Author(s): Potter ; Miller, Sarah; Newman, Susan

Background: Early mobilization (EM) is one of few potential protective factors associated with reduced physical disability post-intensive care (PD PIC). However, only 45% of intensive care units (ICUs) in the United States routinely practice EM despite its recognized benefits.

Objectives: To analyze the evidence on the relationship between critical care EM, PD PIC, and environmental factors, using the theoretical lens of the World Health Organization's (WHO's) International Classification of Functioning, Disability, and Health (ICF).

Method: The Whittemore and Knafl methodology for integrative reviews and PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) reporting guidelines were followed. Qualitative, quantitative, and mixed-methods studies (n = 38) that evaluated EM and 1 or more domains of the WHO ICF were included. Quality was appraised using the Mixed-Methods Appraisal Tool. Study characteristics were evaluated for common themes and relationships. The ICF domains and subdomains pertaining to each study were synthesized.

Results: Early mobilization was related to improved functioning on the disability continuum of the WHO ICF. Early mobilization was influenced by several WHO ICF environmental factors. Dedicated physical and occupational therapy teams in the ICU, interdisciplinary rounds, and positive family and staff perception of EM facilitated intervention delivery. However, poor staffing levels, negative unit culture, perceived workload burden, and lack of equipment, education, and financial support impeded delivery of EM.

Discussion: Early mobilization is a promising intervention that may reduce PD PIC. However, environmental factors negatively influence delivery of EM in the ICU. Several gaps in EM research limit its acceptability in ICU practice. Existing EM research is challenged by poor methodological quality. Further study is necessary to better understand the role of EM on PD PIC and improve patient outcomes following critical illness.

Title: Knowledge and application of upper limb prediction models and attitude toward prognosis among physiotherapists and occupational therapists in the clinical stroke setting.

Citation: Topics in Stroke Rehabilitation; Mar 2021; vol. 28 (no. 2); p. 135-141

Author(s): Kiær ; Lundquist, Camilla Biering; Brunner, Iris

Abstract: A substantial body of research on prediction models for upper limb (UL) function after stroke has emerged during recent years. Despite considerable evidence supporting the use of prediction models, their implementation into clinical practice has not been examined. To investigate whether physiotherapists (PTs) and occupational therapists (OTs) who evaluate and rehabilitate stroke patients know about and apply prediction models for the recovery of UL function. Furthermore, to examine their attitudes toward prognosis for UL function in clinical practice. The authors developed an online survey using REDCap®, specifically aimed to investigate this study's objectives. Physiotherapists and occupational therapists from Danish hospitals with acute stroke or rehabilitation wards were invited to participate. Data were analyzed using STATA 15.1. Of the 380 therapists invited, 58%

responded to the survey. Among those, 35% reported that they knew of prediction models for UL function after stroke. More physiotherapists than occupational therapists were familiar with prediction models ($p = .03$). Of all respondents, 9% confirmed the use of prediction models for UL function in clinical practice. Most therapists (89%) stated that it was important to know how UL function will develop after stroke. Results from this study indicate that prediction models for UL function after stroke are not yet a part of daily practice in Danish stroke rehabilitation. At the same time, knowledge of prognosis seems to be relevant for most therapists in their clinical work.

Title: Tailoring education of adults with cognitive impairment in the inpatient hospital setting: A scoping review.

Citation: Australian Occupational Therapy Journal; Feb 2021; vol. 68 (no. 1); p. 90-102

Author(s): D'Cruz ; Meikle, Louise; White, Megan; Herrmann, Alicia; McCallum, Carrie; Romero, Lorena

Introduction: Education seeks to empower clients to attain and maintain knowledge and skills, and in the context of occupational therapy, to enable occupational participation. While education is routinely provided in the inpatient hospital setting, little is known about how education is best adapted to meet the needs of clients with cognitive impairment. The purpose of this scoping review was to determine what is currently known about approaches to educating adults with cognitive impairment in the inpatient hospital setting.

Methods: Five databases were systematically searched to find studies that reported on the use of education in the inpatient hospital setting with adults with cognitive impairment.

Results: Ten articles were retrieved from the search with duplication of authors across the articles, indicating a small group of research and researchers. Cognitive impairment was not well assessed across all the studies and none included participants with severe cognitive impairment. A number of barriers to education were identified, including time constraints, uncertainty around who should be providing education, a shortage of resources, and client-related barriers such as cognitive deficits. From the retrieved studies it was found that education should occur at multiple time points, be individually tailored, and utilise mixed modal approaches such as verbal and written methods. There was also a preference for less use of jargon, and engagement with carers and clients where possible.

Conclusion: This scoping review highlights factors impacting the provision of education tailored to the needs of clients with cognitive impairment in the inpatient setting. The findings also call to attention the need for better assessment of cognition to guide provision of tailored education, as well as future studies exploring how to best educate clients with not only mild/moderate cognitive impairment but also more severe impairments.

Title: Occupational therapists need to be involved in developing and evaluating technological solutions to support remote working.

Citation: British Journal of Occupational Therapy; Feb 2021; vol. 84 (no. 2); p. 69-71

Author(s): Field ; Read, Jennifer; Jones, Natalie; Fegan, Colette; Lanfranchi, Vita

Title: Supporting workers with lower back injuries to return to work: a meta-ethnography.

Citation: British Journal of Occupational Therapy; Feb 2021; vol. 84 (no. 2); p. 79-91

Introduction: Lower back injuries can prevent people from engaging in the occupation of work, which is considered to be beneficial to physical and mental wellbeing. Return-to-work programmes aim to support people to re-engage with work; however, the success of these can be varied. The aim of this review was to explore what factors facilitated a return to work for those in employment, and what the factors may be in preventing others from making a successful return to work.

Method: A systematic search of the literature identified 10 qualitative research studies, and a meta-ethnographic approach was then used to critique and synthesise the findings to provide a line of argument.

Findings: Interrogation of the selected studies brought about three third-order interpretations as follows: enabling injured workers to return to work safely; challenging negative assumptions; overcoming organisational barriers.

Conclusion: The study supports previous findings that emphasise consideration of wider organisational and psychosocial factors relating to supporting people to return to work, rather than focusing solely on the injured worker. Suggestions are made for the modification of current work practices, the need for a strength-based approach to rehabilitation and for occupational therapists who might work with people living with back pain.

Title: Occupational Therapy for South Asian Older Adults in the United Kingdom: Cross-Cultural Issues.

Citation: British Journal of Occupational Therapy; Feb 2021; vol. 84 (no. 2); p. 92-100

Author(s): Yam ; Murphy, Angela; Thew, Miranda

Introduction: There is limited understanding of the cultural needs of diverse Black and Minority Ethnic populations such as South Asian older adults, which may be perpetuating occupational injustices and health inequalities faced by these groups. Although cultural considerations are intrinsic to person-centred occupational therapy and increasingly relevant to the changing landscape of health and social care, the profession is criticised for its western-centric focus. This study aimed to gain understanding of the current cross-cultural issues in supporting South Asian older adults in the UK, as perceived by occupational therapists.

Method: A constructivist qualitative design supported by thematic analysis was used, involving seven occupational therapists in the United Kingdom who participated in semi-structured interviews via Skype/telephone.

Findings: Cross-cultural issues were illustrated through the following themes: 'when the barriers go down' – cultural mismatch in individualist vs. collectivist worldviews; 'invasion of the family home' – cultural inappropriateness of standard interventions; and 'I go into every assessment assuming nothing' – recognition of and response to challenges.

Conclusion: This study provides insight into cross-cultural issues in occupational therapy for South Asian older adults, revealing a gap between theory and practice in integrating cultural humility. It highlights the need for a more inclusive, person-centred approach to support culturally diverse populations.

Title: Association of Therapy Time and Cognitive Recovery in Stroke Patients in Post-Acute Rehabilitation.

Citation: Journal of the American Medical Directors Association; Feb 2021; vol. 22 (no. 2); p. 453-453

Author(s): Cogan ; Weaver, Jennifer A.; Davidson, Leslie F.; Khromouchkine, Nikolai; Mallinson, Trudy

Abstract: Cognitive impairment is highly prevalent after stroke, with 77% of people having impairment in at least 2 cognitive domains. The purpose of this study is to describe the association between therapy minutes per length of stay (LOS) day and cognitive recovery in patients receiving rehabilitation services in inpatient post-acute care facilities following a stroke. Secondary analyses of data collected in inpatient rehabilitation and skilled nursing facilities from 2005 to 2010 for an observational cohort study. Participants were adults aged ≥ 65 years with Medicare insurance and primary diagnosis of stroke (N = 100). Participants who met criteria for dementia (n = 5) were excluded from analyses. We calculated therapy minutes per LOS day for occupational therapy, physical therapy, speech-language pathology, and all therapies combined; therapy times were dichotomized into high or low minutes per LOS day (MLD). We used an ordinary least squares regression model for cognitive outcome at discharge to control for cognitive status at admission, therapy intensity by discipline, and LOS. At baseline, participants were classified as having severe (n = 11), moderate (n = 39), or mild (n = 45) cognitive impairment. Impairment groups were not significantly different on any demographic variables. The adjusted regression model showed that high occupational therapy MLD (>50 minutes per LOS day) (P = .028) was significantly associated with cognitive measure at discharge compared with low occupational therapy MLD when controlling for cognitive impairment group at baseline (P $<.001$). Neither high physical therapy MLD nor speech-language pathology MLD was significantly associated with cognitive outcome relative to their respective low TMLD groups. Our results show that higher-intensity occupational therapy services were associated with better cognitive outcome at discharge from inpatient rehabilitation after stroke. Findings also suggest that volume of therapy alone does not necessarily produce optimal outcomes. Both amount and type of therapy should be tailored to meet the needs of individual patients.

Title: Establishing a protocol: Acute Care Occupational Therapy For Clients With COVID-19.

Citation: OT Practice; Feb 2021; vol. 26 (no. 2); p. 16-20

Author(s): Green ; Clausing, Alison

Title: A Cost-Effective Analysis of 3D Printing Applications in Occupational Therapy Practice.

Citation: Open Journal of Occupational Therapy (OJOT); Jan 2021; vol. 9 (no. 1); p. 1-14

Author(s): Hunzeker ; Ozelie, Rebecca

Background: Emerging research supports 3D printing can provide customizable, low-cost, and replicable items for application in occupational therapy, but more research is necessary to inform occupational therapists on why and how 3D printing would be applicable and feasible in practice.

Method: This study is a cost-effective analysis aimed to identify practical considerations of a selection of 3D printed items in comparison to commercially available items. Ten items of adaptive equipment were downloaded from open-sourced 3D printing design websites and printed. The estimated cost of material was calculated and each print time was recorded. Items with comparable design and function were selected from a thorough internet search for analysis and comparison to the 3D printed items.

Results: The results demonstrate that each 3D printed item had a positive benefit in terms of material cost and print time compared to the cost and shipping time of each comparable item.

Conclusion: The 3D printed items were the more cost-effective for all items, but most significantly for niche designs with fewer available commercial alternatives. 3D printing successfully replicated commonly used adaptive equipment for a comparable cost, while allowing for customization and the ability to provide the item in-house to clients.

Title: Perspectives on the Professional Communication Profile and Needs of Emerging Occupational Therapists of the Millennial Generation: A Comparison Study.

Citation: Open Journal of Occupational Therapy (OJOT); Jan 2021; vol. 9 (no. 1); p. 1-18

Author(s): Whitney ; Morris, Margaret L.; Harney, Jessica

Background: Millennials, born between 1982 and 2000, became the largest share of the American workforce in 2015. As of 2014, 23.9% of American occupational therapists were under the age of 30. Positive traits ascribed to millennials include: highly educated, ambitious, confident, and optimistic. However, indicators of challenges for managing millennials emerge from media and anecdotal evidence, including stereotypes of disloyalty, entitlement, dependency, and casualness. Relevant for supporting professional development is a call to understand and enhance professional communication.

Method: This study analyzed how emerging millennial occupational therapists self-describe their professional communication profile and needs, compared to the perspective of managers, while aiming to describe the accuracy of communication stereotypes. Occupational therapy managers and emerging occupational therapists of the millennial generation completed an online researcher-created survey.

Results: Comparison of means revealed statistically significant differences, with the most significance noted on items reflecting professional communication skills of millennial occupational therapists.

Conclusion: Analysis of results suggested support for some stereotypes and inaccuracy of others, painting a unique picture of the professional communication profile of millennial occupational therapists. Results from this small-population survey study may inform professional development opportunities for academic and fieldwork educators and occupational therapy managers related to the communication profile and needs of emerging occupational therapists through the lens of generational theory.

Title: Was a global pandemic needed to adopt the use of telehealth in occupational therapy?

Citation: Work; Jan 2021; vol. 68 (no. 1); p. 13-20

Author(s): Hoel ; von Zweck, Claudia; Ledgerd, Ritchard

Background: An analysis of data from an international survey was undertaken to determine the impact of the COVID-19 pandemic on telehealth practice in occupational therapy worldwide, in addition to facilitators and barriers in utilising this form of service delivery.

Method: The global online survey was circulated in the occupational therapy community by the World Federation of Occupational Therapists (WFOT) between April and July 2020, collecting responses to closed-ended questions, in addition to free-text comments. Descriptive statistics and bivariate analyses were used to assess relationships between

respondent characteristics and the utilisation of telehealth. Thematic statement analysis provided further insight regarding factors impacting telehealth use.

Results: Findings revealed a significant increase in the use of telehealth strategies with the onset of the pandemic among survey respondents, with many reported benefits. Bivariate analyses indicated telehealth users were more likely to score higher feelings of safety and positive work morale, as well as perceive employer expectations to be reasonable. Restricted access to technology, limitations of remote practice, funding issues and slow pace of change were identified as barriers for some respondents to utilising telehealth. Facilitators included availability of supportive policy, guidelines and strategies, in addition to education and training.

Conclusion: This study advances the understanding of the current scope of occupational therapy telehealth practice in the context of the ongoing COVID-19 pandemic. Although results suggest long-term potential for telehealth use as an adjunct to traditional service provision, important considerations were identified regarding factors influencing integration of such strategies.

Title: Can occupational therapy manpower be replaced with social robots in a singing group during COVID-19?

Citation: Work; Jan 2021; vol. 68 (no. 1); p. 21-26

Author(s): Liao ; Lin, Tzu-Yuan; Wu, Chia-Chun; Shih, Yi-Nuo

Background: Prior to the COVID-19 global health emergency, reducing direct contacts between therapists and patients is an important issue, and could be achieved by using robots to perform certain caring activities.

Objective: This study compares therapeutic factors of singing group activities directed by social robots and by occupational therapists at elderly care centers during this COVID-19 outbreak.

Methods: This project has a quasi-experimental research design, based on a pilot study of 14 subjects aged above 65 years. They received eight sessions of singing group therapy given by a social robot or an occupational therapist. Completed copies of a therapeutic-factor questionnaire were then collected.

Results: At the 4th week, the scores for 8 therapeutic factors were higher in sessions with the occupational therapist than the robot-directed sessions, reaching a statistically significant level; at the 8th week, the scores for 3 therapeutic factors, including imparting of information, were higher in sessions with the occupational therapist than in sessions with the robot. The top scoring therapeutic factor in the robot sessions was group cohesiveness.

Conclusions: Social robots may be good companion tools for elderly care during this COVID-19 outbreak, but group therapy sessions supervised by real-person therapists still have higher therapeutic factor scores than those conducted by robots. The number of subjects needs to be increased to enhance the validity of future study results.

Title: Occupational Therapy Interventions in Adults with Multiple Sclerosis or Amyotrophic Lateral Sclerosis: A Scoping Review.

Citation: International journal of environmental research and public health; Feb 2021; vol. 18 (no. 4)

Author(s): De-Bernardi-Ojuel, Luis; Torres-Collado, Laura; García-de-la-Hera, Manuela

Abstract: This scoping review aims to describe occupational therapy interventions carried out with multiple sclerosis (MS) and amyotrophic lateral sclerosis (ALS) patients in occupational therapy. A peer review of the literature was conducted in different databases: Pubmed, Scopus, Web of Science and Embase, and in some occupational therapy journals. A search of the literature published was carried out before December 2019. The inclusion criteria were as follows: (1) articles evaluating the intervention of occupational therapy in MS or ALS including experimental, randomized, nonrandomized and exploratory studies; (2) written in English or Spanish; (3) adult population (over 18 years old). The initial search identified 836 articles of which we included 32 divided into four areas of intervention: fatigue-targeted interventions, cognitive interventions, physical interventions and others. Only 16 studies were carried out exclusively by occupational therapists. Most occupational therapy interventions are aimed at fatigue and physical rehabilitation. The majority of the studies in our review included MS patients, with little representation from the ALS population. These interventions have shown an improvement in perceived fatigue, manual dexterity, falls prevention and improvement in cognitive aspects such as memory, communication, depression and quality of life in the MS and ALS populations.

Title: Addressing the Gap: Occupational Therapy in Hospice Care.

Citation: Occupational therapy in health care; Feb 2021 ; p. 1-13

Author(s): Mueller, Emily; Arthur, Paul; Ivy, Mack; Pryor, Loree; Armstead, Amber; Li, Chih-Ying

Abstract: Patients receiving hospice care have a host of occupational challenges, though few are being seen in occupational therapy for treatment. Occupational therapy can help those receiving hospice care live with dignity before death. Data retrieved from the National Home and Hospice Care Survey were analyzed using independent t-tests, Wilcoxon rank-sum tests, Chi-square tests and logistic regressions. Only 10.6% of the participants received occupational therapy. Patients who received occupational therapy were significantly older and had shorter lengths of hospice care service compared to their counterparts. Over 85% of the patients needed assistance with at least one task of activity of daily living (ADL). Findings suggested a need to increase occupational therapy workforce in hospice care and advocate the value of occupational therapy services in hospice settings.

Title: Recommendations for occupational therapy interventions for adults with ADHD: a consensus statement from the UK adult ADHD network.

Citation: BMC psychiatry; Feb 2021; vol. 21 (no. 1); p. 72

Author(s): Adamou, Marios; Asherson, Philip; Arif, Muhammad; Buckenham, Louise; Cubbin, Sally; Dancza, Karina; Gorman, Kirstie; Gudjonsson, Gísli; Gutman, Sharon; Kustow, James; Mabbott, Kerry; May-Benson, Teresa; Muller-Sedgwick, Ulrich; Pell, Emma; Pitts, Mark; Rastrick, Suzanne; Sedgwick, Jane; Smith, Kath; Taylor, Clare; Thompson, Lucy; van Rensburg, Kobus; Young, Susan

Background: ADHD is neurodevelopmental disorder which persists into adulthood. Presently, therapeutic approaches are mainly pharmacological and psychological whilst the role, scope and approaches of occupational therapists have not been adequately described.

Results: In this consensus statement we propose that by assessing specific aspects of a person's occupation, occupational therapists can deploy their unique skills in providing specialist interventions for adults with ADHD. We also propose a framework with areas

where occupational therapists can focus their assessments and give practice examples of specific interventions.

Conclusions: Occupational therapists have much to offer in providing interventions for adults with ADHD. A unified and flexible approach when working with adults with ADHD is most appropriate and further research on occupational therapy interventions is needed.

Title: Experiences of venue based exercise interventions for people with stroke in the UK: a systematic review and thematic synthesis of qualitative research.

Citation: Physiotherapy; Mar 2021; vol. 110 ; p. 5-14

Author(s): Young ; Broom, David; Sage, Karen; Crossland, Kay; Smith, Christine

Abstract: The physical benefits of exercise following stroke are research evidenced and the UK stroke population is increasingly encouraged to engage with exercise interventions. A synthesis of qualitative research is required to further understand the perceived experience and psychosocial effect of exercise for people with stroke. To provide a systematic search and synthesis of evidence about the experiences and reported impact of participation in venue based exercise following stroke in the UK. Eligible studies were identified through a rigorous search of Medline, Cinahl, AMED, PsycINFO, SportDiscus, Proquest and ETHOS from January 2000 until December 2017. Full text qualitative studies or service evaluations conducted in the UK which explored the reported experience of venue based exercise amongst people with stroke. Included studies were evaluated through application of the Consolidated Criteria for Reporting Qualitative Research. Data synthesis using a thematic approach generated descriptive and analytical themes. Six research studies and one service evaluation met the inclusion criteria; methodological quality was variable. These studies highlighted that people with stroke gain confidence and renewed identity through exercise participation. Perceived improvements in physical function were reported and participants enjoyed stroke specific exercise programmes in de-medicalised venues. The studies only accessed people who had completed the exercise programmes; non-completers were not represented. Venue based exercise programmes have a positive effect on perceived wellbeing following stroke. Further research into the reasons for discontinuation of exercise participation following stroke is required. Systematic Review Registration Number PROSPERO 2017:CRD42017072483.

Title: Exploring patient perspectives of barriers and facilitators to participating in hospital-based stroke rehabilitation.

Citation: Disability and rehabilitation; Feb 2021 ; p. 1-10

Author(s): Last, Nicole; Packham, Tara L; Gewurtz, Rebecca E; Letts, Lori J; Harris, Jocelyn E

Background: Patient participation is recognized as an important element of rehabilitation. However, few studies have used a qualitative lens to specifically examine factors influencing patient participation in stroke rehabilitation.

Aim: The purpose of this study was to investigate patient perspectives of barriers and facilitators to participating in hospital-based stroke rehabilitation.

Methods: Semi-structured interviews were conducted with 11 patients, with confirmed diagnoses of stroke, recruited from three separate rehabilitation settings. Analysis of the interviews was guided by a process of interpretive description to identify key barriers and facilitators to participation in stroke rehabilitation.

Results: Four main themes and corresponding sub-themes were constructed concerning participation in rehabilitation: (i) Environmental Factors, (ii) Components of Therapy, (iii) Physical and Emotional Well-Being, and (iv) Personal Motivators. An exploratory model of personalized rehabilitation emerged, integrating the themes emerging from the data.

Discussion: Personalized rehabilitation can be considered in comparison to person-centred care principles. The barriers and enablers experienced by patients in this study contribute to the existing knowledge of the patient experience of stroke rehabilitation and may be used to inform clinical practices and future research. Implications for Rehabilitation The surrounding environments can facilitate participation in rehabilitation using strategies to reduce noise and disruption and also by encouraging social interactions among patients. Increasing the frequency and consistency of communication with patients about rehabilitation goals and progress could enhance participation. Designing interventions to include activities that are meaningful and focused on the resumption of valued life roles is key to participation. Therapy intensity, time spent sedentary, and the emotional impact of stroke are aspects of rehabilitation patient's feel are neglected.

Title: Effectiveness of telerehabilitation in physical therapy: A rapid overview.

Citation: Physical therapy; Feb 2021

Author(s): Seron, P; Oliveros, M J; Gutierrez-Arias, R; Fuentes-Aspe, R; Torres-Castro, R; Merino-Osorio, C; Nahuelhual, P; Inostroza, J; Jalil, Y; Solano, R; Marzuca-Nassr, G; Aguilera, R; Lavados-Romo, P; Soto, F; Sabelle, C; Villarroel, G; Gomolán, P; Huaiquilaf, S; Sanchez, P

Objective: The purpose of this article was to summarize the available evidence from systematic reviews on telerehabilitation in physical therapy.

Methods: Medline/Pubmed, EMBASE and Cochrane Library databases. In addition, the records in PROSPERO and Epistemonikos and PEDro were consulted. Systematic reviews of different conditions, populations and contexts, where the intervention to be evaluated is telerehabilitation by physical therapy were included. The outcomes were clinical effectiveness depending on specific condition, functionality, quality of life, satisfaction, adherence and safety. Data extraction and risk of bias assessment were carried out by a reviewer with non-independent verification by a second reviewer. The findings are reported qualitatively by tables and figures.

Results: Fifty-three systematic reviews were included of which 17 were assessed as having low risk of bias. Fifteen reviews were on cardiorespiratory rehabilitation, 14 on musculoskeletal conditions and 13 on neurorehabilitation. Other 11 reviews addressed other types of conditions and rehabilitation. Thirteen reviews evaluated with low risk of bias showed results in favor of telerehabilitation versus in-person rehabilitation or no-rehabilitation, while 17 reported no differences between the groups. Thirty-five reviews with unclear or high risk of bias showed mixed results.

Conclusions: Despite the contradictory results, telerehabilitation in physical therapy could be comparable to in-person rehabilitation or better than no-rehabilitation for conditions such as osteoarthritis, low back pain, hip and knee replacement, multiple sclerosis, and also in the context of cardiac and pulmonary rehabilitation. It is imperative to conduct better quality clinical trials and systematic reviews.

Impact: Providing with the best available evidence on the effectiveness of telerehabilitation to professionals, mainly physical therapists, will impact the decision-making process and therefore better clinical outcomes for patients, both in these times of covid-19 pandemic and in the future. The identification of research gaps will also contribute to the generation of relevant and novel research questions.

Title: A pilot study to investigate the feasibility of the modified Blaylock Tool for Occupational Therapy Referral (MBTOTR) for use by nurses in acute care.

Citation: Disability & Rehabilitation; Feb 2021; vol. 43 (no. 3); p. 414-422

Author(s): Su Zan Tan ; Mackenzie, Lynette; Travasssaros, Katrina; Yeo, Megan

Abstract: Patients in acute care settings may have limitations in their functional capacity associated with multiple morbidities. Occupational therapy can address factors affecting functional decline, and early and accurate identification of patients requiring occupational therapy referral can facilitate safe discharge. This study aimed to investigate the feasibility of the Modified Blaylock Tool for Occupational Therapy Referral to identify the characteristics of patients who would potentially require occupational therapy referral, for use by acute care nurses. A cross-sectional study was conducted using mixed methods. The Modified Blaylock Tool for Occupational Therapy Referral was completed for 305 patients by six acute care nurses across three clinical areas in an acute hospital setting. Data were analyzed using descriptive and non-parametric statistics. Semi-structured interviews were then conducted with these six nurses to understand their perspectives of their use of the Modified Blaylock Tool for Occupational Therapy Referral. Nearly half (45%) of the assessed patients had Modified Blaylock Tool for Occupational Therapy Referral scores recommending occupational therapy referral. Items associated with risk of functional decline were mobility, memory and recent hospital admissions. Barriers to referral included resource limitations, lack of visibility, poor understanding of occupational therapy and lack of holistic assessment of patients. The Modified Blaylock Tool for Occupational Therapy Referral could be used by nurses to identify acute care patients at risk of functional decline. Future research should include larger and longitudinal studies to validate the Modified Blaylock Tool for Occupational Therapy Referral further. The Modified Blaylock Tool for Occupational Therapy Referral could be used by nurses to identify acute care patients at risk of functional decline. This allows the early and accurate identification of patients requiring occupational therapy referral to facilitate safe discharge from acute care.

Title: A comparison of standard occupational therapy versus early enhanced occupation-based therapy in a medical/surgical intensive care unit: study protocol for a single site feasibility trial (EFFORT-ICU).

Citation: Pilot and feasibility studies; Feb 2021; vol. 7 (no. 1); p. 51

Author(s): Rapolthy-Beck, Andrea; Fleming, Jennifer; Turpin, Merrill; Sosnowski, Kellie; Dullaway, Simone; White, Hayden

Background: Admissions to intensive care units (ICUs) are increasing due to an ageing population, and rising incidence of cardiac and respiratory disease. With advances in medical care, more patients are surviving an initial stay in critical care; however, they can experience ongoing health and cognitive limitations that may influence return to baseline function up to a year post-admission. Recent research has focused on the introduction of early rehabilitation within the ICU to reduce long-term physical and cognitive complications. The aim of this study is to explore the feasibility and impact of providing early enhanced occupation-based therapy, including cognitive stimulation and activities of daily living, to patients in intensive care.

Methods: This study involves a single site randomised-controlled feasibility trial comparing standard occupational therapy care to an early enhanced occupation-based therapy. Thirty mechanically ventilated ICU patients will be recruited and randomly allocated to the intervention or control group. The primary outcome measure is the Functional Independence

Measure (FIM), and secondary measures include the Modified Barthel Index (MBI), Montreal Cognitive Assessment (MoCA), grip strength, Hospital Anxiety and Depression Scale (HADS) and Short-Form 36 Health survey (SF-36). Measures will be collected by a blind assessor at discharge from intensive care, hospital discharge and a 90-day follow-up. Daily outcome measures including the Glasgow Coma Scale (GCS), Richmond Agitation and Sedation Scale (RASS) and Confusion Assessment Measure for intensive care units (CAM-ICU) will be taken prior to treatment. Participants in the intervention group will receive daily a maximum of up to 60-min sessions with an occupational therapist involving cognitive and functional activities such as self-care and grooming. At the follow-up, intervention group participants will be interviewed to gain user perspectives of the intervention. Feasibility data including recruitment and retention rates will be summarised descriptively. Parametric tests will compare outcomes between groups. Interview data will be thematically analysed.

Discussion: This trial will provide information about the feasibility of investigating how occupational therapy interventions in ICU influence longer term outcomes. It seeks to inform the design of a phase III multicentre trial of occupational therapy in critical care general medical intensive care units.

Trial Registration: Australia New Zealand Clinical Trials Registry (ANZCTR): ACTRN12618000374268 ; prospectively registered on 13 March 2018/
<https://www.anzctr.org.au> Trial funding: Metro South Health Research Support Scheme Postgraduate Scholarship.

Title: Bringing sexuality out of the closet: What can we learn from occupational therapists who successfully address the area of sexuality in everyday practice?

Citation: Australian occupational therapy journal; Feb 2021

Author(s): O'Mullan, Cathy; O'Reilly, Maria; Meredith, Pamela

Introduction: Sex has been recognised as an activity of daily living, and sexuality as an important part of our identity, with implications for our self-esteem and quality of life. Although this brings sex and sexuality within the scope of occupational therapy practice, empirical and anecdotal information suggests that neither are routinely included in therapy. The aim of this study was to investigate the experiences of therapists who are comfortable addressing sex and sexuality in practice, with a view to influencing future research and practice. The research question posed was as follows: "What can we learn from occupational therapists who successfully address the area of sexuality in everyday practice?"

Methods: Interpretative Phenomenological Analysis (IPA) was used to explore the research question. Semi-structured interviews were conducted with 11 Australian occupational therapists who were purposively recruited. Interviews were audio-recorded, transcribed verbatim, and analysed following the guidelines for IPA data analysis.

Results: Four master themes and five sub-themes emerged from the analysis and are discussed under the following headings: sexuality matters; know your boundaries; just do it; and seek support and mentoring. The themes provide insight into how occupational therapists successfully integrate sexuality into everyday practice.

Conclusion: According to the participants in this study, addressing sex and sexuality during therapy is part of providing holistic client-centred care. With clear personal and professional boundaries, occupational therapists can address sexuality within routine practice utilising core occupational therapy skills, such as communication, collaborative problem solving, pacing, positioning, and adaptive equipment. Furthermore, participants demonstrated that this can be done within a range of settings. It starts with a commitment and the motivation to find a way.

Title: Frameworks for Parkinson's Disease Rehabilitation Addressing When, What, and How.

Citation: Current neurology and neuroscience reports; Feb 2021; vol. 21 (no. 3); p. 12

Author(s): Rafferty, Miriam R; Nettnin, Ella; Goldman, Jennifer G; MacDonald, Jillian

Purpose Of Review: This review summarizes the evidence on rehabilitation for people with Parkinson's disease, including when to refer, what rehabilitation professionals should address, and how to deliver rehabilitation care.

Recent Findings: Clinical practice guidelines support physical therapy, occupational therapy, and speech-language pathology for Parkinson's disease. However, integrating guidelines into practice may be difficult. Implementation studies take into account patient and clinician perspectives. Synthesizing guidelines with implementation research can improve local delivery. There is moderate to strong evidence supporting physical therapy, occupational therapy, and speech-language pathology soon after diagnosis and in response to functional deficits. We propose a framework of three pathways for rehabilitation care: (1) consultative proactive rehabilitation soon after diagnosis for assessment, treatment of early deficits, and promotion meaningful activities; (2) restorative rehabilitation to promote functional improvements; and (3) skilled maintenance rehabilitation for long-term monitoring of exercise, meaningful activities, safety, contractures, skin integrity, positioning, swallowing, and communication.

Title: An Experience of Multiple Sclerosis Telerehabilitation During the COVID-19 Pandemic...Tenforde AS, Borgstrom H, Polich G, et al. Outpatient Physical, Occupational, and Speech Therapy Synchronous Telemedicine: A Survey Study of Patient Satisfaction with Virtual Visits During the COVID-19 Pandemic.

Citation: American Journal of Physical Medicine & Rehabilitation; Mar 2021; vol. 100 (no. 3); p. 214-214

Author(s): Nora ; Giannarelli, Michela; Zicchinella, Cristina; Mammi, Patrizia; Ranza, Elena; Brianti, Rodolfo

Title: Movement Matters, and So Does Context: Lessons Learned From Multisite Implementation of the Movement Matters Activity Program for Stroke in the Comprehensive Postacute Stroke Services Study.

Citation: Archives of Physical Medicine & Rehabilitation; Mar 2021; vol. 102 (no. 3); p. 532-542

Author(s): Pastva ; Coyle, Peter C.; Coleman, Sylvia W.; Radman, Meghan D.; Taylor, Karen M.; Jones, Sara B.; Bushnell, Cheryl D.; Rosamond, Wayne D.; Johnson, Anna M.; Duncan, Pamela W.; Freburger, Janet K.

Abstract: The purpose of this Special Communication is to discuss the rationale and design of the Movement Matters Activity Program for Stroke (MMA) and explore implementation successes and challenges in home health and outpatient therapy practices across the stroke belt state of North Carolina. MMA is an interventional component of the Comprehensive Postacute Stroke Services Study, a randomized multicenter pragmatic trial of stroke transitional care. MMA was designed to maximize survivor health, recovery, and functional independence in the community and to promote evidence-based rehabilitative care. MMA

provided training, tools, and resources to enable rehabilitation providers to (1) prescribe physical activity and exercise according to evidence-based guidelines and programs, (2) match service setting and parameters with survivor function and benefit coverage, and (3) align treatment with quality metric reporting to demonstrate value-based care. MMAP implementation strategies were aligned with the Expert Recommendations for Implementing Change project, and MMAP site champion and facilitator survey feedback were thematically organized into the Consolidated Framework for Implementation Research domains. MMAP implementation was challenging, required modification and was affected by provider- and system-level factors. Program and study participation were limited and affected by practice priorities, productivity standards, and stroke patient volume. Sites with successful implementation appeared to have empowered MMAP champions in vertically integrated systems that embraced innovation. Findings from this broad evaluation can serve as a road map for the design and implementation of other comprehensive, complex interventions that aim to bridge the currently disconnected realms of acute care, postacute care, and community resources. • Comprehensive Postacute Stroke Services (COMPASS) is a large pragmatic trial of comprehensive postacute stroke services. • The Movement Matters Activity Program (MMAP) is a key COMPASS model intervention. • The MMAP promotes evidence-based poststroke rehabilitative care in the community. • The MMAP implementation in home health and outpatient therapy was highly variable. • Keys to success: empowered leaders, informed clinicians, value-based care emphasis.

Title: Perceived occupational balance in people with stroke.

Citation: Disability & Rehabilitation; Feb 2021; vol. 43 (no. 4); p. 553-558

Author(s): Kassberg ; Nyman, Anneli; Larsson Lund, Maria

Abstract: The balance of activities in daily life can become disrupted after a stroke; however, previous research has mainly focused on the performance of daily activities. Therefore, it is important to understand the impact that stroke has on various aspects of balance in activities for working-age people. To describe how persons with stroke perceived their occupational balance and to explore whether occupational balance was associated with the severity of disability, fatigue and sociodemographic characteristics. This cross-sectional study included 63 working-age persons with stroke. The Occupational Balance Questionnaire, Glasgow Outcome Scale and Fatigue Severity Scale were used and analyzed statistically. The majority of participants disagreed or strongly disagreed that they perceived occupational balance in most of the investigated aspects. Moreover, few significant associations were found between total summed occupational balance and injury and sociodemographic characteristics. These results demonstrate the importance of considering occupational balance in the rehabilitation of persons with stroke to support their engagement in a variety of meaningful activities that contribute to health. Rehabilitation need to support persons with stroke to monitor their entire patterns of activities and perceived balance to support wider engagement in meaningful activities and promote health. Balance between all kinds of activities in daily life besides work, needs to be considered in the later phase of rehabilitation in persons with stroke. A majority of the participants with stroke in this study disagreed that they had a satisfying level of occupational balance. Perceived balance between all activities in daily life can together with performance of activities add to the understanding of consequences after stroke.

Title: Effectiveness of a home-based exercise program among patients with lower limb spasticity post-stroke: A randomized controlled trial.

Citation: Asian Nursing Research; Feb 2021; vol. 15 (no. 1); p. 1-7

Author(s): Chen ; Lv, Chang; Wu, Jiaozhen; Zhou, Chengwei; Shui, Xiaolong; Wang, Yi

Abstract: To evaluate the effectiveness of advanced practice nurse–guided home-based rehabilitation exercise program (HREPro) among patients with lower limb spasticity post-stroke. This randomized controlled study recruited 121 patients with lower limb spasticity post-stroke. Intervention (n = 59) and control (n = 62) groups underwent 12-month HREPro and conventional rehabilitation, respectively, after discharge. The Fugl–Meyer assessment of spasticity measurement, modified Ashworth scale of motor function, 10-Meter Walk Test of walking ability, and Barthel index of activities of daily living (ADL) were evaluated at 0, 3, 6, and 12 months after discharge. Significant differences were found in spasticity degree, motor function, walking ability, and ADL at 6 and 12 months after discharge between the control and intervention groups. Lower limb spasticity and ADL in the intervention group were significantly improved. HREPro is effective for rehabilitation of patients with lower limb spasticity post-stroke and has favorable home application.

Title: Perceived barriers to exercise reported by individuals with stroke, who are able to walk in the community.

Citation: Disability & Rehabilitation; Feb 2021; vol. 43 (no. 3); p. 331-337

Author(s): Débora Pacheco ; Guimarães Caetano, Lívia Cristina; Amorim Samora, Giane; Sant'Ana, Romeu; Fuscaldi Teixeira-Salmela, Luci; Scianni, Aline Alvim

Abstract: To identify the perceived barriers to exercise, which could be modified, as well as the associated factors in people at the sub-acute post-stroke stages, who were able to walk in the community. For this exploratory study, barriers to exercise were identified by the Exercise Barrier sub-scale of the Exercise Benefits/Barriers Scale. Step-wise multiple linear regression analysis was employed to identify which of the clinical and sociodemographic variables, that is, age, walking speed, levels of physical activity, socioeconomic status, and depressive symptoms, could significantly predict the Exercise Barrier sub-scale scores. Ninety-five individuals, who had a mean age of 63 (13) years and a mean time since the onset of the stroke of 4 (1) months participated. The main reported barriers to exercise were related to fatigue, as well as availability and distance from the exercise places. Additional reported barriers were "lack of a person to help" and "knowledge on how to practice exercise." Perceived barriers were associated with depressive symptoms and socioeconomic status. Together, they explained 9% of the variance in the Exercise Barrier sub-scale scores ($p < 0.01$). Fatigue, reduced number of places, and long distances to exercise places were the main reported barriers to exercise. Depressive symptoms and socioeconomic status were the only variables that explained the variance in the Exercise Barrier sub-scale scores. Rehabilitation interventions should include strategies to reduce fatigue during and after exercise, provide guidance regarding both structured and unstructured exercise venues, in addition to screening and managing depressive symptoms. Stroke survivors, who are able to walk in the community, should be referred and instructed on how to reduce fatigue through the practice of exercise. Health professionals should guide stroke survivors about the existing places for practice of exercise and how to exercise without structured environments. It is necessary to create or reformulate environments for exercise and provide orientation to practice through qualified professionals. Health

professionals should also be able to assess the presence of depressive symptoms and address proper referral and management of the potential barriers to exercise.

Title: Kinesio taping techniques for ankle stabilisation in patients with stroke: a single-blinded randomised controlled study.

Citation: International Journal of Therapy & Rehabilitation; Feb 2021; vol. 28 (no. 2); p. 1-12

Author(s): Kurul ; Cankaya, Tamer; Yildirim, Necmiye Un

Background/Aims: Ankle proprioception and neuromuscular feedback from this region provides the sensory input needed for balance. The aim of this study was to investigate the effects of repeated correction taping applied on the ankle and peroneus longus and peroneus brevis muscles on balance and gait in patients with stroke.

Methods: A total of 61 patients with stroke with a mean age of 62.25 ± 7.04 years were included in this study. The patients were randomly divided into two groups. The control group (n=30) received 1 hour of rehabilitation, which took place during weekdays over the course of 2 weeks. The intervention group (n=31) received 1 hour of daily rehabilitation as well as having kinesio tape applied to their ankle. Both groups were assessed with the Balance Evaluating Systems Test, Timed Up and Go Test, Functional Reach Test, Tetrax Balance System and Barthel Index. Clinical assessments were performed at baseline, immediately after the first application, 1 week and 2 weeks later, following the first taping.

Results: There was a significant improvement in the Balance Evaluating Systems and Functional Reach Tests scores between the first and last measurements in favour of the intervention group (P<0.05). There was no significant difference in Tetrax scores, Timed Up and Go Test and Barthel Index scores (P>0.05).

Conclusions: In this study, it was found that dynamic balance was improved by taping the peroneus longus and peroneus brevis muscles, but the static balance did not change. One week of kinesio taping would be beneficial; however, prolonged use would not provide further improvement.

Title: Effectiveness of an integrated multidisciplinary geriatric rehabilitation programme for older persons with stroke: a multicentre randomised controlled trial.

Citation: BMC geriatrics; Feb 2021; vol. 21 (no. 1); p. 134

Author(s): Vluggen, Tom P M M; van Haastregt, Jolanda C M; Tan, Frans E; Verbunt, Jeanine A; van Heugten, Caroline M; Schols, Jos M G A

Background: Almost half of the stroke patients admitted to geriatric rehabilitation has persisting problems after discharge. Currently, there is no evidence based geriatric rehabilitation programme available for older stroke patients, combining inpatient rehabilitation with adequate ambulatory aftercare in the community. Therefore, we developed an integrated multidisciplinary rehabilitation programme that includes aftercare for older persons with stroke. We evaluated the effectiveness of this newly developed rehabilitation programme in comparison to usual care.

Methods: A multicentre randomised controlled trial was conducted in eight geriatric rehabilitation stroke units and their collaborating partners in primary care. The study population involved stroke patients and their informal caregivers who were aged 65 or over, living in the community before admission to geriatric rehabilitation, and expected to be able to return home after discharge. The programme consisted of three modules: inpatient

neurorehabilitation, home-based self-management training, and stroke education. For patients, daily activity (FAI) was assessed as primary outcome and functional dependence (Katz-15), perceived quality of life (SSQoL) and social participation (IPA) as secondary outcomes. Additionally, among informal caregivers perceived care burden (self-rated burden VAS), objective care burden (Erasmus iBMG), and quality of life (CarerQoL), were assessed as secondary outcomes.

Results: In total 190 patients and 172 informal caregivers were included. Mean age of the patients in the intervention group was 78.9 years (SD = 7.0) and in the usual care group 79.0 years (SD = 6.5). Significant favourable effects for the programme were observed for the subscale autonomy outdoors of the IPA (- 2.15, P = .047, and for the informal caregivers perceived care burden (1.23, P = .048. For the primary outcome daily activity and the other secondary outcomes, no significant effects were observed.

Conclusion: The integrated multidisciplinary programme had no effect on daily activity of older stroke patients. However, patients participating in the programme had a higher level of perceived autonomy of outdoor activities and their informal caregivers perceived a lower care burden. The programme might be promising in providing adequate (after) care, although adaptation of the programme is recommended to increase its feasibility and improve its effects.

Trial Registration: Current Controlled Trials ISRCTN62286281 . Registered 19-3-2010.

Title: Nutrition and hydration management among stroke patients in inpatient rehabilitation: a best practice implementation project.

Citation: JBI evidence implementation; Mar 2021; vol. 19 (no. 1); p. 56-67

Author(s): Mullins, Natalie

Introduction: In 2012 in Australia, stroke was the cause of 11 791 deaths and affected the lives of over 420 000 survivors. Survivors experience significant physical and cognitive deficits; and accumulate a 43% risk of subsequent stroke. Effective evidence-based management of stroke is essential. The Stroke Foundation released Clinical Guidelines for Stroke Management in 2017. Within these guidelines, nutrition and hydration are recognized as important aspects of poststroke management. Audit criteria drawn from the guidelines focussed on the role of multidisciplinary screening, assessment, monitoring and treatment of dehydration and malnutrition; as well as provision of nutrition education and counselling relating to secondary prevention of stroke. The implementation team included dietetics, medical and nursing staff. The project was completed in the stroke unit at Hampstead Rehabilitation Centre (Adelaide, South Australia).

Objectives: To determine current compliance with Australian Clinical Guidelines of Stroke Management 2017, specifically those relating to nutrition, hydration and secondary prevention. To engage a multidisciplinary team to develop and implement strategies promoting best practice care for stroke survivors.

Methods: The project utilized the Joanna Briggs Institute Practical Application of Clinical Evidence System audit tool for baseline and follow-up audit, and the Getting Research into Practice feedback tool to facilitate practice change.

Results: Postimplementation audit results demonstrated improvement in four criteria: Criterion 3 - Nondysphagic stroke patients with confirmed malnutrition or at risk for malnutrition are offered oral nutrition supplements, Criterion 4 - Stroke patients who are malnourished or at risk of malnutrition are referred to a Dietitian for individualized medical nutrition therapy, Criterion 5 - The hydration status of stroke patients is assessed, monitored and managed throughout their hospital admission, Criterion 6 - Stroke survivors are referred to a Dietitian for the provision of individualized dietary advice which incorporates secondary

prevention strategies. Criterion 7 (A collaborative goal setting approach which includes the stroke survivor, their families and carers and the rehabilitation care team is implemented) remained consistent at 100% compliance. Although Criteria 5 and 6 improved during the project, they remained below 75% compliance therefore, offer ongoing opportunity for development. Criterion 1 (Stroke patients are screened for malnutrition upon admission using a validated malnutrition screening tool) and Criterion 2 (Stroke patients are rescreened for malnutrition weekly using a validated malnutrition screening tool) were affected by a change from written to electronic medical records therefore, the results did not accurately reflect the intervention.

Conclusion: The current project successfully increased knowledge of nutrition and hydration management for stroke survivors and more closely aligned inpatient management with best practice guidelines to improve health outcomes. It highlighted areas of focus moving forward and has prompted ongoing work for sustaining evidence-based practice change.

Title: Impact of Modified Cardiac Rehabilitation Within a Stroke Recovery Program on All-Cause Hospital Readmissions.

Citation: American journal of physical medicine & rehabilitation; Feb 2021

Author(s): Cuccurullo, Sara J; Fleming, Talya K; Kostis, John B; Greiss, Christine; Eckert, Anne; Ray, Arlen Razon; Scarpato, Rosann; Zinonos, Stavros; Gizzi, Martin; Cosgrove, Nora M; Cabrera, Javier; Park, Mooyeon Oh; Kostis, William J

Objective: A Stroke Recovery Program (SRP) including cardiac rehabilitation (CR) demonstrated lower all-cause mortality rates, improved cardiovascular function and overall functional ability among stroke survivors. Neither the effect of SRP on acute care hospital readmission rates nor cost-savings have been reported.

Design: This prospective matched cohort study included 193 acute stroke survivors admitted to an inpatient rehabilitation facility between 2015 and 2017. The 105 SRP-participants (SRPP) and 88 non-participants (NP) were matched exactly for stroke type, gender, and race, and approximately for age, baseline functional scores, and medical complexity scores. Primary outcome measured acute care hospital readmission rate up to one-year post-stroke. Secondary outcomes measured costs.

Results: A 22% absolute reduction ($p=0.006$) in hospital readmissions was observed between the SRPP ($n=47,45\%$) and NP ($n=59,67\%$) groups. This resulted in significant cost-savings. The conventional care cost to CMS for stroke patients for both readmissions and outpatient therapy is estimated at \$9.67 billion annually. The yearly cost for these services with utilization of the SRP is \$8.55 billion.

Conclusion: Acute care hospital readmissions were reduced in stroke survivors who participated in SRP. Future study is warranted that widespread application of a similar program may improve quality of life and decrease cost.

Title: Stroke and digital technology: a wake-up call from COVID-19 pandemic.

Citation: Neurological sciences : official journal of the Italian Neurological Society and of the Italian Society of Clinical Neurophysiology; Mar 2021; vol. 42 (no. 3); p. 805-809

Author(s): Iodice, Francesco; Romoli, Michele; Giometto, Bruno; Clerico, Marinella; Tedeschi, Giocchino; Bonavita, Simona; Leocani, Letizia; Lavorgna, Luigi; Digital Technologies, Web and Social Media Study Group of the Italian Society of Neurology

Introduction: The pandemic has implemented the need for new digital technologies as useful tools during the emergency and the long recovery phase that will follow. SARS-CoV-2 has strongly impacted stroke care with significant contraction in a number of patients treated.

Methods: This mini-review is an initiative of the "Digital Technologies, Web and Social Media Study Group" of the Italian Society of Neurology and briefly discusses digital tools for managing the acute phase and the rehabilitation after stroke, even considering the new apps that will improve the process of remote monitoring of patients after discharge at home.

Results: Telemedicine and digital technologies could play a role in each of the three stroke-belt stages: hyperacute treatment and reperfusion, acute care, etiological classification and secondary prevention and rehabilitation.

Conclusion: The global emergency represented by the COVID-19 pandemic can be the stimulus to accelerate the digitalization process in the field of stroke for the use of new methods on a large scale.

Title: A usability study in patients with stroke using MERLIN, a robotic system based on serious games for upper limb rehabilitation in the home setting.

Citation: Journal of neuroengineering and rehabilitation; Feb 2021; vol. 18 (no. 1); p. 41

Author(s): Guillén-Climent, Silvia; Garzo, Ainara; Muñoz-Alcaraz, María Nieves; Casado-Adam, Pablo; Arcas-Ruiz-Ruano, Javier; Mejías-Ruiz, Manuela; Mayordomo-Riera, Fernando Jesús

Background: Neuroscience and neurotechnology are transforming stroke rehabilitation. Robotic devices, in addition to telerehabilitation, are increasingly being used to train the upper limbs after stroke, and their use at home allows us to extend institutional rehabilitation by increasing and prolonging therapy. The aim of this study is to assess the usability of the MERLIN robotic system based on serious games for upper limb rehabilitation in people with stroke in the home environment.

Methods: 9 participants with a stroke in three different stages of recovery (subacute, short-term chronic and long-term chronic) with impaired arm/hand function, were recruited to use the MERLIN system for 3 weeks: 1 week training at the Maimonides Biomedical Research Institute of Cordoba (IMIBIC), and 2 weeks at the patients' homes. To evaluate usability, the System Usability Scale (SUS), Adapted Intrinsic Motivation Inventory (IMI), Quebec User Evaluation of Satisfaction with assistive Technology (QUEST), and the ArmAssist Usability Assessment Questionnaire were used in the post-intervention. Clinical outcomes for upper limb motor function were assessed pre- and post-intervention.

Results: 9 patients participated in and completed the study. The usability assessment reported a high level of satisfaction: mean SUS score 71.94 % (SD = 16.38), mean QUEST scale 3.81 (SD = 0.38), and mean Adapted IMI score 6.12 (SD = 1.36). The results of the ArmAssist Questionnaire showed an average of 6 out of 7, which indicates that MERLIN is extremely intuitive, easy to learn and easy to use. Regarding clinical assessment, the Fugl-Meyer scores showed moderate improvements from pre- to post-intervention in the total score of motor function ($p = 0.002$). There were no significant changes in the Modified Ashworth scale outcomes ($p = 0.169$).

Conclusions: This usability study indicates that home-based rehabilitation for upper limbs with the MERLIN system is safe, useful, feasible and motivating. Telerehabilitation constitutes a major step forward in the use of intensive rehabilitation at home. Trial registration ClinicalTrials.gov, NCT04405609. Registered 06 January 2020-Retrospectively registered, <https://clinicaltrials.gov/ct2/show/NCT04405609>.

Title: Decision-Making on Referral to Primary Care Physiotherapy After Inpatient Stroke Rehabilitation.

Citation: Journal of stroke and cerebrovascular diseases : the official journal of National Stroke Association; Feb 2021; vol. 30 (no. 5); p. 105667

Author(s): Geerars, Marieke; Wondergem, Roderick; Pisters, Martijn F

Objective: This study aimed to acquire insight into the decision-making processes of healthcare professionals concerning referral to primary care physiotherapy at the time of discharge from inpatient stroke rehabilitation.

Design: A generic qualitative study using an inductive thematic analysis was performed. Semi-structured interviews were conducted following an interview guide.

Setting: Secondary care centers in the Netherlands: neurology departments of nine hospitals and (geriatric) rehabilitation centers.

Participants: Nineteen healthcare professionals (physiotherapists, specialist in geriatric medicine, physiatrist, physician assistant) participated in the study. All were involved in the decision for referral to primary care physiotherapy.

Results: During the inpatient period, healthcare professionals gather information to form a complete picture of the stroke survivor as a basis for decision-making. The decision on referral is influenced by personal factors and home environment of the stroke survivor, organizational factors within the care setting, and the intuition and feeling of social responsibility of the individual healthcare professional.

Conclusions: After inpatient rehabilitation, many elements are considered that may influence referral to primary care physiotherapy. Presently, there is no consensus concerning referrals. The final decision depends on the individual physiotherapist and care setting. Healthcare professionals mentioned the importance of movement behavior, although there is no consensus if secondary prevention is a primary task of the physiotherapist. More research is needed to identify risk factors for functional decline in order to develop a referral policy that addresses primary care physiotherapy to the right group of stroke survivors.

Title: Inclusion of relatives in stroke rehabilitation: Perception of quality of services they received in the context of early supported discharged (ESD), in- and out-patient services.

Citation: Topics in stroke rehabilitation; Mar 2021; vol. 28 (no. 2); p. 142-152

Author(s): Rochette, Annie; Dugas, Ariane; Morissette-Gravel, Anne-Sophie

Background: Relatives of stroke patients should be an integral part of the continuum of rehabilitation services.

Objective: The objective was to describe their perception of the quality of the services they received in the context of early supported discharged (ESD), in- and out-patient rehabilitation services.

Methods: Descriptive study using the Quality of Services Questionnaire for Relatives post-stroke (QSQR) completed online by relatives after the patient's discharge. It consists of 22 statements with respect to three subscales: 1) the training/instructions, 2) the information provision and 3) the organizational process of the service offer. Space is allowed for free comments and two open-ended questions. Quantitative data were analyzed descriptively, and we used a content analysis for qualitative data.

Results: One-third (30/90; 33.3%) of the sample are composed of relatives aged 55 and under, with a majority (81%) of women and 51.3% of spouses. The training/instructions and information provision were perceived positively with a mean % agreement at 85.0 ± 29.6 and 84.8 ± 22.4 , respectively. The mean % agreement was 91.4 ± 17.8 for the organizational process subscale. A significantly higher score ($p = 0,03$; Kruskal Wallis test) was found for out-patient services ($n = 20$) as compared to ESD ($n = 29$) or in-patient rehabilitation ($n = 41$). Qualitatively, a lack of involvement of relatives was mentioned as well as a lack of personalized information about stroke and its consequences and provision of resources available. However, communication between professionals, their availability, and their professionalism were appreciated.

Conclusion: Despite quantitative high scores, qualitative data allowed the identification of concrete avenues for improvement to truly and systematically include relatives in stroke rehabilitation.

Title: Do clinical guidelines guide clinical practice in stroke rehabilitation? An international survey of health professionals.

Citation: Disability and rehabilitation; Mar 2021 ; p. 1-8

Author(s): Lynch, Elizabeth A; Connell, Louise A; Carvalho, Lilian B; Bird, Marie-Louise

Purpose: To identify health professionals awareness of stroke rehabilitation guidelines, and factors perceived to influence guideline use internationally.

Methods: Online survey study. Open-ended responses were thematically analysed, guided by the Consolidated Framework for Implementation Research.

Results: Data from 833 respondents from 30 countries were included. Locally developed guidelines were available in 22 countries represented in the sample. Respondents from high-income countries were more aware of local guidelines compared with respondents from low- and middle-income countries. Local contextual factors such as management support and a culture of valuing evidence-based practice were reported to positively influence guideline use, whereas inadequate time and shortages of skilled staff inhibited the delivery of guideline-recommended care. Processes reported to improve guideline use included education, training, formation of workgroups, and audit-feedback cycles. Broader contextual factors included accountability (or lack thereof) of health professionals to deliver rehabilitation consistent with guideline recommendations.

Conclusion: While many health professionals were aware of clinical guidelines, they identified multiple barriers to their implementation. Efforts should be made to raise awareness of local guidelines in low- and middle-income countries. More attention should be paid to addressing local contextual factors to improve guideline use internationally, going beyond traditional strategies focused on individual health professionals.

Implications For Rehabilitation: Systems are required so people and organisations are held accountable to deliver evidence-based care in stroke rehabilitation. Locally developed stroke rehabilitation guidelines should be promoted to boost awareness of these guidelines in low- and middle-income countries. In all regions, strategies to influence or adapt to the local setting, are required to optimise guideline use.

Title: Aquatic therapy in stroke rehabilitation: systematic review and meta-analysis.

Citation: Acta neurologica Scandinavica; Mar 2021; vol. 143 (no. 3); p. 221-241

Author(s): Veldema, Jitka; Jansen, Petra

Abstract: The main object of this systematic review and meta-analysis is to collect the available evidence of aquatic therapy in stroke rehabilitation and to investigate the effect of this intervention in supporting stroke recovery. The PubMed, the Cochrane Central Register of Controlled Trials and the PEDro databases were searched from their inception through to 31/05/2020 on randomized controlled trials evaluating the effect of aquatic therapy on stroke recovery. Subjects' characteristics, methodological aspects, intervention description, and outcomes were extracted. Effect sizes were calculated for each study and outcome. Overall, 28 appropriate studies (N = 961) have been identified. A comparison with no intervention indicates that aquatic therapy is effective in supporting walking, balance, emotional status and health-related quality of life, spasticity, and physiological indicators. In comparison with land-based interventions, aquatic therapy shows superior effectiveness on balance, walking, muscular strength, proprioception, health-related quality of life, physiological indicators, and cardiorespiratory fitness. Only on independence in activities of daily living the land- and water-based exercise induce similar effects. Established concepts of water-based therapy (such as the Halliwick, Ai Chi, Watsu, or Bad Ragaz Ring methods) are the most effective, aquatic treadmill walking is the least effective. The current evidence is insufficient to support this therapy form within evidence-based rehabilitation. However, the available data indicate that this therapy can significantly improve a wide range of stroke-induced disabilities. Future research should devote more attention to this highly potent intervention.

Title: Economic evaluation of nurse-led stroke aftercare addressing long-term psychosocial outcome: a comparison to care-as-usual.

Citation: BMJ open; Feb 2021; vol. 11 (no. 2); p. e039201

Author(s): Verberne, Daan P J; van Mastrigt, Ghislaine A P G; Ponds, Rudolf W H M; van Heugten, Caroline M; Kroese, Mariëlle E A L

Objective: To examine the cost-effectiveness of nurse-led stroke aftercare addressing psychosocial outcome at 6 months post stroke, compared with care-as-usual.

Design: Economic evaluation within a comparative effectiveness research design.

Setting: Primary care (2016-2017) and community settings (2011-2013) in the Netherlands.

Participants: Persons who suffered from ischaemic or haemorrhagic stroke, or a transient ischaemic attack and were discharged home after visiting the emergency department, hospitalisation or inpatient rehabilitation.

Interventions: Nurse-led stroke aftercare at 6 months post stroke addressing psychosocial functioning by providing screening, psycho-education, emotional support and referral to specialist care when needed. Care-as-usual concerned routine follow-up care including secondary prevention programmes and a consultation with the neurologist at 6 weeks post stroke.

Primary and Secondary Outcome Measures: Main outcome measure of cost-effectiveness was quality-adjusted life years (QALYs) estimated by the quality of life measured by the five-dimensional, three-level EuroQol. Costs were assessed using a cost-questionnaire. Secondary outcomes were mood (Hospital Anxiety and Depression Scale) and social participation (Utrecht Scale for Evaluation of Rehabilitation-Participation) restrictions subscale.

Results: Health outcomes were significantly better in stroke aftercare for QALYs ($\Delta=0.05$; 95% CI 0.01 to 0.09) and social participation ($\Delta=4.91$; 95% CI 1.89 to 7.93) compared with care-as-usual. Total societal costs were €1208 higher in stroke aftercare than in care-as-usual (95% CI -€3881 to €6057). Healthcare costs were in total €1208 higher in stroke aftercare than in care-as-usual (95% CI -€3881 to €6057). Average costs of stroke aftercare were €91 (SD=€3.20) per person. Base case cost-effectiveness analyses showed an

incremental cost-effectiveness ratio of €24 679 per QALY gained. Probability of stroke aftercare being cost-effective was 64% on a €50 000 willingness-to-pay level.

Conclusions: Nurse-led stroke aftercare addressing psychosocial functioning showed to be a low-cost intervention and is likely to be a cost-effective addition to care-as-usual. It plays an important role by screening and addressing psychosocial problem, not covered by usual care.

Title: Speech rehabilitation in post-stroke aphasia using visual illustration of speech articulators: A case report study.

Citation: Clinical linguistics & phonetics; Mar 2021; vol. 35 (no. 3); p. 253-276

Author(s): Haldin, Céline; Loevenbruck, Hélène; Hueber, Thomas; Marcon, Valérie; Piscicelli, Céline; Perrier, Pascal; Chrispin, Anne; Pérennou, Dominic; Baciú, Monica

Abstract: Recent studies on the remediation of speech disorders suggest that providing visual information of speech articulators may contribute to improve speech production. In this study, we evaluate the effectiveness of an illustration-based rehabilitation method on speech recovery of a patient with non-fluent chronic aphasia. The Ultraspeech-player software allowed visualization by the patient of reference tongue and lip movements recorded using ultrasound and video imaging. This method can improve the patient's awareness of their own lingual and labial movements, which can increase the ability to coordinate and combine articulatory gestures. The effects of this method were assessed by analyzing performance during speech tasks, the phonological processes identified in the errors made during the phoneme repetition task and the acoustic parameters derived from the speech signal. We also evaluated cognitive performance before and after rehabilitation. The integrity of visuospatial ability, short-term and working memory and some executive functions supports the effectiveness of the rehabilitation method. Our results showed that illustration-based rehabilitation technique had a beneficial effect on the patient's speech production, especially for stop and fricative consonants which are targeted (high visibility of speech articulator configurations) by the software, but also on reading abilities. Acoustic parameters indicated an improvement in the distinction between consonant categories: voiced and voiceless stops or alveolar, post-alveolar and labiodental fricatives. However, the patient showed little improvement for vowels. These results confirmed the advantage of using illustration-based rehabilitation technique and the necessity of detailed subjective and objective intra-speaker evaluation in speech production to fully evaluate speech abilities.

Title: Effect of Rhythm of Music Therapy on Gait in Patients with Stroke.

Citation: Journal of stroke and cerebrovascular diseases : the official journal of National Stroke Association; Mar 2021; vol. 30 (no. 3); p. 105544

Author(s): Wang, Yao; Pan, Wei-Yi; Li, Fei; Ge, Jun-Sheng; Zhang, Xiang; Luo, Xun; Wang, Yu-Long

Aim: This study aims to analyze the effects of rhythm of music therapy on gait in patients with ischemic stroke, and explore the value of music therapy in walking training in stroke.

Methods: The present study is a prospective clinical study. Sixty patients with ischemic stroke, who were admitted to our hospital from October 2017 to December 2018, were enrolled. These patients were divided into two groups, according to the method of the random number table, with thirty patients in each group: control group and study group. Patients in the control group received conventional drug therapy, rehabilitation training and

walking training, while the patients in the study group were given music therapy on the basis of the above mentioned therapies for four weeks, during which Sunday was regarded as a rest day, and the music therapy was suspended. The main outcome measures included indexes in evaluating the walking ability of patients in these two groups. At each time point, the Fugl-Meyer Assessment (FMA), Berg Balance Scale (BBS) and stroke rehabilitation treatment satisfaction questionnaire were used.

Results: The results revealed that the stride length, cadence and maximum velocity were higher in patients in the study group, when compared to patients in the control group, at the second week and end of the therapy, and the difference in step length between the affected side and healthy side was significantly lower in the study group than in the control group. These differences were statistically significant ($P < 0.05$). In the second week of therapy and at the end of therapy, the FMA and BBS scores were higher in the study group than in the control group, and the difference was statistically significant ($P < 0.05$). The total satisfaction rate was higher in the study group than in the control group, and the difference was statistically significant ($P < 0.05$).

Conclusion: Under the stimulation of music rhythm, applying music therapy to patients with ischemic stroke can improve their gait, walking ability, lower limb motor function, balance ability and treatment satisfaction.

Title: Post-stroke depression: Chaos to exposition.

Citation: Brain research bulletin; Mar 2021; vol. 168 ; p. 74-88

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Abstract: Cerebral ischemia contributes to significant disabilities worldwide, impairing cognitive function and motor coordination in affected individuals. Stroke has severe neuropsychological outcomes, the major one being a stroke. Stroke survivors begin to show symptoms of depression within a few months of the incidence that overtime progresses to become a long-term ailment. As the pathophysiology for the progression of the disease is multifactorial and complex, it limits the understanding of the disease mechanism completely. Meta-analyses and randomized clinical trials have shown that intervening early with tricyclic antidepressants and selective serotonin receptor inhibitors can be effective. However, these pharmacotherapies possess several limitations that have given rise to newer approaches such as brain stimulation, psychotherapy and rehabilitation therapy, which in today's time are gaining attention for their beneficial results in post-stroke depression (PSD). The present review highlights numerous factors like lesion location, inflammatory mediators and genetic abnormalities that play a crucial role in the development of depression in stroke patients. Further, we have also discussed various mechanisms involved in post-stroke depression (PSD) and strategies for early detection and diagnosis using biomarkers that may revolutionize treatment for the affected population. Towards the end, along with the preclinical scenario, we have also discussed the various treatment approaches like pharmacotherapy, traditional medicines, psychotherapy, electrical stimulation and microRNAs being utilized for effectively managing PSD.

Title: Approach to patients with hip fracture and concurrent stroke.

Citation: BMJ case reports; Feb 2021; vol. 14 (no. 2)

Author(s): Lim, Jing Wei; Ang, Guat Cheng

Abstract: We report a case of a 70-year-old man who presented with concomitant hip fracture and stroke. Our patient underwent surgical correction of a hip fracture despite the increased perioperative and postoperative risks associated with an acute stroke. He achieved good functional outcome after surgery and subsequent rehabilitation. There are no clear guidelines on the factors to determine whether a patient with concomitant stroke and hip fracture is a good candidate for surgical hip repair. Furthermore, there is also no consensus on the appropriate timing of surgical repair for such patients. We postulate that factors such as functional status, comorbidities, type and severity of stroke will affect the decision to proceed with surgical repair, and that there is a benefit in advocating for surgery in appropriate patients by a multidisciplinary orthogeriatric care team.

Title: Effectiveness of Nintendo Wii and Physical Therapy in Functionality, Balance, and Daily Activities in Chronic Stroke Patients.

Citation: Journal of the American Medical Directors Association; Feb 2021

Author(s): Marques-Sule, Elena; Arnal-Gómez, Anna; Buitrago-Jiménez, Gloria; Suso-Martí, Luis; Cuenca-Martínez, Ferran; Espí-López, Gemma Victoria

Objectives: The aim of this study was to assess whether a virtual rehabilitation program using Nintendo Wii added to conventional physical therapy improved functionality, balance, and daily activities in chronic stroke survivors, when compared with conventional physical therapy.

Design: We undertook a randomized controlled clinical trial. The participants of this study were randomized to 2 groups: (1) conventional physical therapy (CPTG), which included exercises related to functionality, balance, and activities of daily living; and (2) virtual reality with Nintendo Wii (VRWiiG), which included balance training with the Wii Balance Board and upper limb exercises with the Wii Sports package, added to conventional physical therapy.

Setting and Participants: This study was conducted in a university rehabilitation clinic and 29 stroke survivors were admitted.

Methods: Both interventions lasted 4 weeks, 2 sessions per week. Assessments were performed at baseline and at the end of the study, including functionality (Timed up and go [TUG]), balance (Tinetti Performance-Oriented Mobility Assessment [POMA]), Berg Balance Scale (BBS), and activities of daily living (Fugl-Meyer Upper Limb Motor Assessment, Barthel Index, Frenchay Activity Index [FAI]).

Results: Regarding TUG, POMA, and BBS, the analysis of variance showed significant differences for time and group*time interaction. Post hoc analysis showed between-group differences ($P = .044$, $d = -0.78$; $P = .012$, $d = 1.00$; $P = .042$, $d = 0.79$, respectively) and within-group differences only in the VRWiiG ($P < .001$, $d = 0.75$; $P < .001$, $d = -0.76$; $P < .001$, $d = -0.57$, respectively). Regarding activities of daily living, post hoc analysis showed within-group differences only in VRWiiG.

Conclusions and Implications: Our study showed promising results in functionality, balance, and activities of daily living when adding virtual reality with Nintendo Wii to conventional physical therapy in chronic stroke survivors. All procedures were approved by the Human Research Ethics Committee of the University of Valencia (H1518177391901). ClinicalTrials.gov database (NLM identifier NCT04144556).

Title: Boxing training in patients with stroke causes improvement of upper extremity, balance, and cognitive functions but should it be applied as virtual or real?

Citation: Topics in stroke rehabilitation; Mar 2021; vol. 28 (no. 2); p. 112-126

Author(s): Ersoy, Ceren; Iyigun, Gozde

Background: Upper extremity hemiparesis is one of the most common post-stroke disabilities requiring rehabilitation.

Objective: To compare the effects of virtual and real boxing training in addition to neurodevelopmental treatment on the upper extremity, balance, and cognitive functions in hemiparetic stroke patients.

Methods: Forty hemiparetic stroke patients were assigned to either real boxing group-RBG (n=20) or virtual boxing group-VBG (n=20), for a total of 24 sessions (3 sessions/week for 8 weeks). The primary outcome was upper extremity motor ability (Wolf Motor Function Test-WMFT). The secondary outcomes were arm-hand dexterity (Manual Dexterity Test-MMDT), goal-oriented performance (Video Boxing Analysis-VBA), balance functions (Fullerton Advanced Balance Scale-FAB-T), and cognitive functions (Addenbrooke's Cognitive Examination-Revised-ACE-R).

Results: There was small treatment effect on ACE-R, small-medium effect for WFMT and MMDT and large effect on bilateral punching time [VBA (Cohen's d- VBG=0.83; RBG=0.95)] and balance [FAB-T (Cohen's d - VBG=0.89; RBG=0.82)] after treatment in both groups. No significant differences were found for training effects between the groups for upper extremity functions [WMFT (p=0.799; Cohen's d=-0.07), MMDT-PT (p=0.327; Cohen's d=-0.10), MMDT-THTPT (p=0.779; Cohen's d=-0.17) and VBA bilateral punch number (p=0.068; Cohen's d=0.15)], balance functions [FAB-T (p=0.602; Cohen's d=-0.19)] and cognitive functions [ACE-R total (p=0.947, Cohen's d=0.09)].

Conclusion: The study showed that virtual and real boxing training methods, in addition to neurodevelopmental treatment, are effective in improving upper extremity, balance, and cognitive functions in patients with hemiparetic stroke. The training effects were higher on bilateral punching time and balance functions for both groups. There was no superiority of either approach.

Title: A novel assistive therapy chair to improve trunk control during neurorehabilitation: Perceptions of physical therapists and patients.

Citation: Applied ergonomics; Feb 2021; vol. 94 ; p. 103390

Author(s): Bauer, C M; Nast, I; Scheermesser, M; Kuster, R P; Textor, D; Wenger, M; Kool, J; Baumgartner, D

Abstract: A prototype assistive therapy chair (T-Chair) that induces exercise stimuli to improve trunk control and standing and walking early after stroke has been developed. The aim of this study was to assess its usability in a rehabilitation setting. Eleven physical therapists (PTs) integrated the T-Chair into the therapy programs of 15 patients post stroke. Each patient performed on average four individual therapy sessions on the T-Chair under the PTs' supervision. Usability was assessed using questionnaires, therapy diaries and focus group interviews with PTs'. Among PTs', 64% had generally a positive view on the T-Chair. Physical therapists recognized the potential for unsupervised therapy. Generally, patients reacted positively and enjoyed training. The T-Chair has the potential to become an adequate training tool for patients with an intermediate trunk control after stroke. Further development and usability testing are required to provide a therapeutic device allowing for an intensive therapy early post stroke.

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