

Role of Rehabilitation in Promoting Engagement in Daily Life in Multiple Sclerosis

Facing the Challenges of the 21st Century

Niels Peeters, MSc; Inger Grethe Løyning, MSc; Sofie Ferdinand, BSc; Daphne Kos, PhD

The purpose of this narrative review is to define the theoretical constructs of engagement, participation, and balance. The implementation of these constructs in multiple sclerosis (MS) rehabilitation are described because MS symptoms such as fatigue and cognitive decline may affect engagement in daily life. The constructs of engagement and participation can be considered to be different when they are studied. The constructs related to balance are of interest when targeting engagement. Multidisciplinary rehabilitation programs may have beneficial effects in optimizing engagement. Therefore, the measurement of these constructs is primordial because they give us a deeper understanding of the meaning of activity performance that reflects engagement in daily life. Future research may focus on describing engagement in both men and women at all stages of MS and may explore variables that influence engagement in daily life to integrate engagement optimization in MS rehabilitation. Engagement may have beneficial effects as part of multidisciplinary rehabilitation in MS. *Int J MS Care*. 2020;22:256-262.

Recently the World Health Organization (WHO) opened the discussion on the strategic potential of rehabilitation in the 21st century. They state that the current society is facing different challenges: aging populations, increasing prevalence of noncommunicable and chronic conditions, increasing health care costs, and increasing numbers of survivors from injury and illness. To meet these challenges, it will become important to invest in rehabilitation, which provides many opportunities for reducing hospital length of stay, increasing the functionality of individuals, keeping people at or bringing people to work, and increasing health and well-being.¹ Return-on-investment benefits

From the Department Rehabilitation Sciences, Neurorehabilitation Research Group, KU Leuven, Leuven, Belgium (NP, DK); MS-Senteret Hakadal, Hakadal, Norway (IGL); National MS Center Melsbroek, Brussels, Belgium (SF, DK); and RIMS (Rehabilitation in Multiple Sclerosis), eurims.org (NP, IGL, SF, DK). *Correspondence*: Prof. Daphne Kos, Rehabilitation Sciences, KU Leuven, Tervuursevest 101, PO Box 1501, Gebouw De Nayer, Room 02.58, Leuven, 3001 Belgium; e-mail: daphne.kos@kuleuven.be.

DOI: 10.7224/1537-2073.2019-094

© 2020 Consortium of Multiple Sclerosis Centers.

of rehabilitation may be gained in long-term rather than short-term perspectives.¹

Several misconceptions about the value of rehabilitation may exist: rehabilitation is solely for people with disabilities, rehabilitation is highly specialized, and rehabilitation is a luxury health service.¹ To convince policy makers of the beneficial effects and the return on investment of rehabilitation, it is necessary to provide scientific insights from and close knowledge gaps in effectiveness among various rehabilitation disciplines. Suggestions are provided in the WHO reports¹: cost-benefits research, identifying facilitators and barriers in rehabilitation, and enabling a standardized measure for the impact of rehabilitation. Consequently, it is important for all rehabilitation disciplines to profile themselves and take on the described challenges.

Because the WHO suggests that rehabilitation may be part of the strategy to address current and future challenges, it is important to study how rehabilitation may define its role to do so. The importance of rehabilitation cannot be underestimated due to potential long-term effects on well-being. Constructs such as engagement and participation are interesting for rehabilitation pro-

professionals who try to enable the patient in performing functions, activities, and occupations to perform their roles (eg, father, husband, teacher).

As governments continue to rethink their health care systems, the relevance of rehabilitation in the current and future society can be considered from the perspective of the patient's engagement in daily life. This is important because not only are the direct observable outcomes of treatment considered, but also attention to the entire experience of a patient in all its facets is emerging. This can be seen in the growing awareness of professionals about the relevance of the ability to engage in daily life, to participate, and to be in balance and of ways to improve these. The ability to engage or participate in daily life may be compromised in people with multiple sclerosis (MS) due to disease-related symptoms and limitations.

In discussing engagement in rehabilitation, it is of primary importance to define the constructs, which are characterized by ambiguity. The purpose of this narrative review was to define the theoretical constructs of engagement, participation, and balance and to describe the potential implementation of these in MS rehabilitation.

Defining Engagement and Participation

In the field of occupational therapy, the construct of occupational engagement is frequently used. This is defined by Morris and Cox^{2(p160)} as "the involvement in an occupation with current positive personal value attached to it. Engaging occupations require more involvement than those occupations that just interest the individual, but not as much as those that absorb them." Although discussion is possible regarding whether to consider occupational engagement and engagement as one and the same construct, engagement as defined in positive psychology is quite similar: "engagement refers to being actively involved in something that is important and valued, personally, spiritually, socially, and or culturally."^{3(p29)}

The distinction between engagement as involvement in a life situation and participation may be confusing because the International Classification of Functioning, Disability, and Health defined participation as "[i]nvolvement in a life situation."⁴ However, when engagement is considered the same as participation, it does not emphasize the patient's entire experience. Townsend and Polatajko⁵ wrote about this in their description of the Canadian Model of Occupational Per-

formance and Engagement. They state that when a person may not be able to actively perform an activity, he or she can still be immersed and experience the situation.⁵ For example, a former trailrunner may be unable to be an active participant in or organizer of a race due to a medical condition but may be involved through immersion in the activity/situation as a spectator, for example, at the finish line.⁵

The construct of occupation is defined as the performance of personal meaningful activities in interaction with a specific context, which creates a personal unique experience. It can be concluded that some activities may be part of an occupation, but not all of them.⁶ According to Pierce,⁶ the core distinction between an activity and an occupation is that the latter takes place within a specific context that is not entirely replicable. For example, imagine what it is like to listen to a congress keynote lecture (this can be considered an activity). The person listening to a keynote lecture is experiencing it within a specific context that is not repeatable completely: it is characterized by elements of time (duration, time of the day), a physical context (conference venue, temperature, seats), social interactions (audience surrounding the person), information transaction (visibility of the speaker/screens, audibility of the lecture), etc.

Importance of Balance in Engagement in Rehabilitation

Engagement mainly focuses on immersion in activities or occupations, which goes further than mere participation in activities or occupations. Therefore, engagement and participation are considered to be different constructs. When striving for improvement of engagement in different patient populations, it may be important to focus on optimal balance in the amount and kind of activities or occupations. This is especially described in the occupational science literature, where the constructs of occupational and lifestyle balance have been used.

Occupational balance is defined as "... the individual's subjective experience of having the 'right mix' (ie, amount and variation) of occupations in his or her occupational pattern."^{7(p325)} In the Model of Lifestyle Balance, *life balance* is defined as a sustainable pattern of occupations that contributes to health and well-being as well as to a sense of self in relation to environment.⁸

The following example emphasizes the differences between occupational and lifestyle balance. A person who puts high importance on work and prefers to invest

a lot of time on work may feel less urgency to invest time in leisure activities. If the organization of daily life is according to the perspective of this person, one may say that this person has a good occupational balance because it meets their personal perspective on having the right mix (amount and variation) of occupations. However, because this pattern may not be sustainable long-term and may be disadvantageous for the well-being of this person, there is no lifestyle balance; lifestyle balance requires sustainability and a healthy balance.

Engagement and Participation in People with MS

Engagement

The search for evidence related specifically to the construct of engagement in MS revealed that the few available papers are mainly confined to engagement in physical activities (PAs) and health-related behaviors. One exception is the work of Lexell et al,⁹ who used qualitative research to understand how men and women with MS experience engagement in occupations of everyday life. Participants stated that the way they live their lives had changed because of the restrictions caused by the disease as well as the increased allocation of value to positive life experiences. Participants experienced a constant struggle for engagement in occupations that was caused by factors embedded in society (eg, lack of support from social services), other people (eg, reduced contact with significant others), and symptoms of MS (eg, fatigue). Change in performance of occupations caused feelings of incapacity, reduced worthiness, and altered personal identity wherein participants felt like someone other than themselves.⁹

Apart from occupational engagement, literature was found on engagement in PA in people with MS. It can be criticized whether engagement in PA covers engagement altogether. It may be considered as only a part of engagement that focuses solely on the physical execution of activities or occupations, maybe similar to participation as mentioned previously herein. Dlugonski et al¹⁰ conducted interviews to provide insight into engagement in PA in women with MS. They stated PA "... involves the daily accumulation of 30 or more minutes of self-selected activities, including leisure, occupation, or household activities that are moderate vigorous in intensity and planned or unplanned activities as part of everyday life."^{10(p2149)} Participants acknowledged performing instrumental activities of daily living as highly important. They engaged in PAs to feel normal and to

compare their current physical functioning with what is considered normal. Furthermore, they used "being physically active" as an indicator of functional decline.¹⁰

In studying engagement in PA, it is also important to get insight into facilitators and barriers. Kayes et al¹¹ conducted a qualitative study to identify the facilitators and barriers to engaging in PA in MS and identified two main themes. The first addresses the beliefs about PA by the person with MS. The following beliefs are described: 1) the cycle of activity and inactivity (containing the cycle of fatigue and activity); 2) a thin line between beneficial and harmful exercise; 3) PA is a waste of time because of the unclear benefits; 4) PA leads to worsening of the symptoms; 5) PA offers the possibility to maintain abilities; and 6) convictions build on contradictory beliefs, which is actually a combination of the previously described elements.¹¹

The available instruments to assess engagement in daily life as defined previously herein are limited. The Engagement in Meaningful Activities Survey is used to specifically measure the full experience of engagement.^{12,13} This survey is used to gain insight into the subjective personal experiences of engagement in meaningful activities. Participants answer 12 items using a 5-point Likert scale, with higher scores indicating higher meaningfulness of specific occupations.¹² Although this was the only instrument withdrawn from the included literature, it is possible that some instruments named *engagement* differently while referring to the same construct.

When dealing with engagement in daily life and/or PA it is interesting to observe the goal-setting and goal adaptation process. People with MS set goals in their (daily) life, but because of different factors these goals may need to be adjusted. In MS the progressive nature of the disease may be one of the contributing factors, although it is not always clear which factor is causing goal adjustment. Goal adjustment involves goal disengagement (ie, leaving the previously set but unattainable goal) and goal reengagement (ie, striving toward reaching new or adapted goals).¹⁴ Higher levels of goal disengagement and reengagement are expected to be related to better well-being. Although research results are conflicting, there is evidence for a beneficial effect of goal reengagement and manageability of goals on well-being and depression.¹⁴⁻¹⁶ These insights may be useful when setting meaningful and realistic goals to optimize

engagement in life and when coaching people with a progressive disease such as MS in goal adaptation.

Participation

In prospective cohort research, changes in activity limitation and participation over 10 years were studied in a Swedish MS population.¹⁷ People with mild MS showed restrictions in a few domains of participation, those with moderate MS experienced restricted participation in domestic and outdoor activities, and most with severe MS showed restricted participation in all social/lifestyle activities. Over time, an increase in participation restrictions was present across all MS groups, but mostly in the moderate group.

Higher levels of (satisfaction with) participation in MS have been found in younger people, individuals working more than 20 hours weekly, and those with higher educational levels.¹⁸

In using a regression model to explain the variance in participation by multiple variables, researchers concluded that cognitive problems and environmental barriers are the main variables affecting participation. Self-efficacy, self-management, and activity limitations are influential variables as well, although their effects are considered to be indirect. The regression model with these variables declared 19% of the variance in participation, as measured using the Community Integration Measurement.¹⁹

Measuring participation is complex because of the ambiguity in defining the construct, because the activities and related patterns on which participation is conceptualized are personal, and because the previously mentioned activities and related patterns may change in priority and meaning within each person.¹⁸ Several instruments to assess participation in MS are available. Finlayson et al²⁰ proposed four instruments to be used in the fall prevention program for individuals with MS to measure participation. One of the mentioned instruments is the Impact on Participation and Autonomy (IPA) questionnaire, which is used to gain insight into perceived limitations by asking questions about autonomy indoors, family role, autonomy outdoors, social life, relationships, work, and education. Using the IPA the participant answers 32 items over five subscales.²⁰ The IPA has been frequently used in the MS population.

Occupational and Lifestyle Balance

As already mentioned, occupational and lifestyle balance are interesting constructs related to engagement. The amount of literature on occupational balance in the MS population is limited; therefore, occupational

balance in rheumatoid arthritis (RA) will be discussed briefly because of its similarity with MS (exacerbation, remission, and fatigue; the need to organize daily activities to meet health-related needs; and the presence of autoimmunologic processes).

Stamm et al²¹ described occupational balance in three dimensions: 1) mastering RA has become a major occupation that prevented the participants from executing other occupations that used to be important; 2) because of the disease the performance of occupations is restricted in such a way that they lose the feeling of importance to others (eg, losing a job); and 3) participants reported that RA led to increasing possibilities in caring for oneself but also in giving support to peers with RA. These findings may potentially be extrapolated to the field of MS rehabilitation.²¹

To assess occupational balance, Dür et al²² provided an overview of 20 different instruments to be used in clinical practice or research in diverse target groups. These instruments mainly assess balance in the variety of occupational patterns and areas, time use, congruence among occupations, and meaning of occupations.²²

Although there is some evidence available on lifestyle balance, it is limited, certainly when considering the description of how lifestyle balance is present in certain patient populations and the MS population. Most publications describing lifestyle balance are written in the field of mental health.

Matuska and Erickson²³ conducted research to describe how lifestyle balance is experienced in women with MS and framed it within the model of lifestyle balance. Participants focused on facing their health-related needs and coping with stress because stress may affect their health condition and MS exacerbation. Participants also felt it was important to maintain relationships to have balance and fulfill their roles. Symptoms of MS affect their ability to perform habits, often leading to adaptation or outsourcing of these habits, which in turn may affect their identity. To achieve balance in daily life, participants had to gain skills in organizing time and energy and in prioritizing activities.²³

Based on the analysis of a non-MS-specific population-based database of the Life Balance Inventory (LBI) of 1048 people, the influence of certain variables on life balance was studied. Results indicate that male sex, White race, older age, being employed by others (vs self-employed or nonemployed), and having children are related to reduced LBI total scores. The authors reported

that it is difficult to state which variables are de facto influencing the construct of lifestyle balance due to an interrelation and entanglement of different variables. For example, higher education degrees may lead to higher incomes influencing the living conditions.²⁴

Limited instruments are available to measure lifestyle balance. One of the most reported instruments, the LBI, can be used to measure lifestyle balance in different patient populations. The LBI measures two main domains of the lifestyle balance model: 1) activity congruence (match between desired and actual activity patterns in everyday life) and 2) activity equivalence (agreement between desired and actual time spent across various activities that meet the four need dimensions in the LBI: health, relationships, identity, and challenge).²⁵ The LBI was translated into Spanish, Dutch, Flemish, Slovenian, and French and was studied in stroke and MS samples.²⁶⁻²⁸

Implementation of Engagement, Participation, and Balance in MS Rehabilitation

The purpose of this section is to discuss the implementation of insights related to engagement. During the therapeutic process it is important to collect information related to the functioning of the person with MS from a holistic perspective. To support this, a thorough interview with the person with MS on the performance of roles and related activities in daily life can be combined

with a home visit, providing additional information on the functioning of the person with MS in daily life. All this information can be used to plan or adapt the therapeutic process with personalized goals. This may improve the intrinsic motivation of the person with MS to continue therapy, and thus improve therapy compliance. Table 1 summarizes the conceptualizations and measurements of the constructs based on the included literature.

Working in a multidisciplinary manner is primordial in rehabilitation not solely because of continuity and optimized outcomes but also to improve engagement of the person with MS. Because engagement of the person with MS is multifactorial (financial situation, mobility, transport, etc), every professional may focus on one or more of these factors and in this way affect engagement. Results of a systematic review show that multidisciplinary treatment improves self-care, mobility, and activities and participation short-term and reduces disability. Future work should focus on the effect on quality of life and engagement long-term.²⁹

Specifically in occupational therapy, personalized goals are set and achieved using an occupation-based approach. This means that the occupational therapist uses meaningful occupations of the person with MS as a way to achieve the person's personalized goals.³⁰ For example, one may have the meaningful occupation of

Table 1. Overview of constructs

Construct	Conceptualization	Measurement
Engagement	Engagement is becoming part of a situation where one can experience meaningful occupations, whereby active contributions are not a prerequisite.	Engagement in Meaningful Activities Survey (EMAS): Measurement of personal perspectives on engagement in activities. A survey with 12 items on a 5-point Likert scale.
Participation	Participation is becoming part of a situation whereby one actively performs activities and/or occupations to become part of the situation.	Impact on Participation and Autonomy Questionnaire (IPA): Measurement of perceived limitations in participation. It uses 32 items in five subscales (autonomy indoors, family role, autonomy outdoors, social life and relationships, work and education).
Occupational balance	Occupational balance is the subjective judgment of an individual whereby one is perceiving the composition of his or her daily occupations as good according to personal perspectives.	20 instruments are listed by Dür et al. ²²
Lifestyle balance	Lifestyle balance is about a composition of daily activities and occupations that is sustainable and contributes to health. Although an individual is perceiving good occupational balance, the composition of activities and occupations may be unsustainable and unhealthy and, therefore, lack lifestyle balance.	Lifestyle Balance Inventory (LBI): Measurement of activity congruence and activity equivalence. It is, therefore, answered in two steps. The participant evaluates whether he or she wants to perform the activity; afterward these activities are evaluated for desired and actual participation times.

cross-country skiing with the family in nature. Therefore, the occupation of cross-country skiing may be used gradually during therapy and may be combined with energy self-management programs. Other occupations may be used as well to reach the goal of cross-country skiing with the family. For example, playing billiards may be used to train in balance and weight bearing.

During the therapeutic process with use of an occupation-based approach, the purpose may be to improve engagement of the person with MS. Because engagement in occupations is personally determined by the person with MS, it may be of added value to use self-management principles. During self-management interventions, attention is focused on the ability to self-steer decisions and actions, change behaviors, and maintain emotional stability.^{31,32} Based on a meta-analysis, the evidence regarding self-management programs increasing quality of life is, however, still limited.³³ Kidd et al³⁴ concluded in their systematic review that self-management interventions with elements of cognitive behavioral therapy (eg, goal setting) may improve well-being because they improve anxiety, depression, and quality of life.

Cognitive decline related to MS may play a role in compromised engagement. Hynes and Forwell³⁵ describe the development of a cognitive occupation-based program for people with MS to provide a holistic program to improve participation in daily occupations compromised by cognitive problems. Therefore, the principles

PRACTICE POINTS

- Engagement is defined as total immersion in daily life situations involving multiple aspects of human functioning. Therefore, a multidisciplinary approach to improving the engagement of the person with MS is recommended.
- It is important to use different information sources to gain insight into daily roles and related activities and their context and the occupations of the person with MS. Personalized goals allow implementation of interventions to improve engagement. Therefore, the personal preferences, personal capacities, and contextual possibilities related to engagement should be considered.
- An occupation-based perspective can be used to personalize the client-centered rehabilitation provided by occupational therapists.

of education, remediation, and adaptation are used in a program consisting of two individual and six group sessions. Participants learn to manage daily life, employment, and community engagement by paying attention to routines, compensatory strategies, and streaming demands. In a qualitative study, participants valued the approach and content of the program and reported a feeling of getting control, which may be important during the early stages of MS.³⁵ Future work may provide insight into the effectiveness of the intervention.

Limitations and Conclusions

The disadvantage of conducting a narrative review is that there is no comprehensive view of all the existing literature. Although we gave a conceptualization of different constructs based on the literature, there may be references that are not included.

Based on the summary of the literature it can be concluded that engagement and participation are different constructs. When targeting engagement during the rehabilitation process, occupational and lifestyle balance should be considered because they are about the organization and selection of activities and occupations in daily life.

Although it is important for research to untangle these related constructs, this has to be done with prudence because the constructs are characterized by interrelationships where it may not be desirable to untangle them in daily practice. In studying the different constructs, we conclude that MS and its symptoms may affect engagement, participation, and occupational and lifestyle balance.

The interventions and programs described herein may guide rehabilitation professionals in integrating engagement into daily practice. Optimizing engagement in daily life can be part of fatigue management, other self-management programs, and strategies to deal with cognitive decline. However, it can be argued to not primarily focus on (dealing with) the symptoms but rather to start from the target, that is, obtaining optimal engagement in daily life.

In this narrative review we did not provide an overview of all the available evidence on this topic; the purpose was to summarize evidence on this topic and, as such, contribute to the discussion on rehabilitation strategies in MS.

Future research may focus on the description of engagement and associated variables in all people with MS. Furthermore, programs and interventions can be

adapted to facilitate engagement in daily life, which may improve overall quality of life in people with MS. □

Financial Disclosures: The authors declare no conflicts of interest.

Funding/Support: None.

References

- World Health Organization. *Rehabilitation: Key for Health in the 21st Century*. World Health Organization; 2017.
- Morris K, Cox DL. Developing a descriptive framework for "occupational engagement." *J Occup Sci*. 2017;24:152-164.
- Iwasaki Y, Messina ES, Hopper T. The role of leisure in meaning-making and engagement with life. *J Posit Psychol*. 2018;13:29-35.
- Nederlands WHO-ICF Collaborating Centre. *Nederlandse Vertaling van de International Classification of Functioning, Disability and Health*. 2nd ed. Standaard Uitgeverij; 2007.
- Townsend EA, Polatajko HJ. *Enabling Occupation II: Advancing an Occupational Therapy Vision for Health, Well-Being, & Justice Through Occupation*. CAOT Publications ACE; 2013.
- Pierce D. Untangling occupation and activity. *Am J Occup Ther*. 2001;55:138-146.
- Wagman P, Håkansson C, Björklund A. Occupational balance as used in occupational therapy: a concept analysis. *Scand J Occup Ther*. 2012;19:322-327.
- Matuska KM, Christiansen CH. A proposed model of lifestyle balance. *J Occup Sci*. 2008;15:9-19.
- Lexell EM, Lund ML, Iwarsson S. Constantly changing lives: experiences of people with multiple sclerosis. *Am J Occup Ther*. 2009;63:772-781.
- Długonski D, Rachel JJ, Moll RW. Meanings, motivations, and strategies for engaging in physical activity among women with multiple sclerosis. *Disabil Rehabil*. 2012;34:2148-2157.
- Kayes NM, McPherson KM, Taylor D, Schlüter PJ, Kolt GS. Facilitators and barriers to engagement in physical activity for people with multiple sclerosis: a qualitative investigation. *Disabil Rehabil*. 2011;33:625-642.
- Goldberg B, Brintnell ES, Goldberg J. The relationship between engagement in meaningful activities and quality of life in persons disabled by mental illness. *Occup Ther Ment Health*. 2002;18:17-44.
- Eakman AM. Convergent validity of the engagement in meaningful activities survey in a college sample. *OTJR Occup Participation Health*. 2011;31:23-32.
- Wrosch C, Scheier M, Miller G, Schulz R, Carver C. Adaptive self-regulation of unattainable goals: goal disengagement, goal reengagement and subjective well-being. *Pers Soc Psychol Bull*. 2003;29:1494-1508.
- Van Damme S, Kindt S, Crombez G, Goubert L, Debruyne J. The relation between goal adjustment, goal disturbance, and mental well-being among persons with multiple sclerosis. *Psychol Health*. 2019;34:645-660.
- Neter E, Litvak A, Miller A. Goal disengagement and goal reengagement among multiple sclerosis patients: relationship to well-being and illness representation. *Psychol Health*. 2009;24:175-186.
- Conradsson D, Ytterberg C, Engelkes C, Johansson S, Gottberg K. Activity limitations and participation restrictions in people with multiple sclerosis: a detailed 10-year perspective [published online ahead of print June 13, 2019]. *Disabil Rehabil*. doi:10.1080/09638288.2019.1626919.
- Yorkston KM, Bamer A, Johnson K, Amtmann D. Satisfaction with participation in multiple sclerosis and spinal cord injury. *Disabil Rehabil*. 2012;34:747-753.
- Plow MA, Finlayson M, Gunzler D, Heinemann AW. Correlates of participation in meaningful activities among people with multiple sclerosis. *J Rehabil Med*. 2015;47:538-545.
- Finlayson M, Peterson E, Matsuda PN. Participation as an outcome in multiple sclerosis falls-prevention research: consensus recommendation from the International MS Falls Prevention Research Network. *Int J MS Care*. 2014;16:171-177.
- Stamm T, Lovelock L, Stew G, et al. I have a disease but I am not ill: a narrative study of occupational balance in people with rheumatoid arthritis. *OTJR Occup Participation Health*. 2009;29:32-39.
- Dür M, Unger J, Stoffer M, et al. Definitions of occupational balance and their coverage by instruments. *Br J Occup Ther*. 2015;78:4-15.
- Matuska KM, Erickson B. Lifestyle balance: how it is described and experienced by women with multiple sclerosis. *J Occup Sci*. 2008;15:20-26.
- Matuska K, Bass J, Schmitt JS. Life balance and perceived stress: predictors and demographic profile. *OTJR Occup Participation Health*. 2013;33:146-158.
- Matuska K. Description and development of the Life Balance Inventory. *OTJR Occup Participant Health*. 2012;32:220-228.
- Ferdinand S, Duportail M, Roekens V, et al. Life balance of European people with MS: RIMS multicenter psychometric study. *Mult Scler*. 2018;24:846.
- Van Gils A, Meyer S, Beyens H, Schillebeeckx F, Verheyden G, Kos D. Psychometric properties of the Flemish version of the life balance inventory: a patient-reported outcome measure in the chronic stage after stroke [published online ahead of print March 4, 2019]. *Disabil Rehabil*. doi:10.1080/09638288.2019.1575921
- Larivière N, Levasseur M. Traduction et validation du questionnaire ergothérapeutique l'Inventaire de l'équilibre de vie. *Can J Occup Ther*. 2016;83:103-114.
- Amatya B, Khan F, Galea M. Rehabilitation for people with multiple sclerosis: an overview of Cochrane Reviews. *Cochrane Database Syst Rev*. 2019;1:CD012732.
- Fisher AG. Occupation-centred, occupation-based, occupation-focused: same, same or different? *Scand J Occup Ther*. 2013;20:162-173.
- Khan F, Amatya B. Rehabilitation in multiple sclerosis: a systematic review of systematic reviews. *Arch Phys Med Rehabil*. 2017;98:353-367.
- Salomè A, Sasso D'Elia T, Franchini G, Santilli V, Paolucci T. Occupational therapy in fatigue management in multiple sclerosis: an umbrella review. *Mult Scler Int*. 2019;2019:2027947.
- Lorig K, Mazonson P, Holman H. Evidence suggesting that health education for self-management in patients with chronic arthritis has sustained health benefits while reducing health care costs. *Arthritis Rheum*. 2016;36:439-446.
- Kidd T, Carey N, Mold F, et al. A systematic review of the effectiveness of self-management interventions in people with multiple sclerosis at improving depression, anxiety and quality of life. *PLoS One*. 2017;12:e0185931.
- Hynes SM, Forwell S. A cognitive occupation-based programme for people with multiple sclerosis: a new occupational therapy cognitive rehabilitation intervention. *Hong Kong J Occup Ther*. 2019;32:41-52.

ARE YOU ON TWITTER? IJMCS IS!

We frequently tweet about new IJMCS developments, and we don't want you to be left out. Readers and reviewers: Keep current with IJMCS announcements and the latest free online content. Authors: We're tweeting about your articles; don't miss the opportunity to help spread the word about your research.

Find and follow us @IJMCStweets