

REVIEW ARTICLE (META-ANALYSIS)

Role of Environmental Factors on Resuming Valued Activities Poststroke: A Systematic Review of Qualitative and Quantitative Findings



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Abstract

Objective: To investigate how reengagement in valued activities poststroke is influenced by environmental factors.

Data Sources: PubMed, CINAHL, and PsycINFO were searched to June 2015 using multiple search terms for stroke, activities, disability, and home and community environments, with the following constraints: English, humans, and adults.

Study Selection: Studies were included that contained data on how reengagement in valued activities of community-dwelling stroke survivors was influenced by the environment. Two reviewers independently selected the studies. The search yielded 3726 records; 39 studies were eventually included.

Data Extraction: Findings were extracted from qualitative, quantitative, and mixed-design studies. Two reviewers independently assessed study quality using the Oxford Critical Appraisal Skills Programme lists and independently extracted results.

Data Synthesis: Thematic analysis was conducted on qualitative data, revealing 9 themes related to the iterative nature of the process of reengagement and the associated environmental factors. During the process of reengagement, environmental factors interact with personal and disease-related factors in a gradual process of shaping or abandoning valued activities. The sociocultural context in this case determines what activities are valued and can be resumed by stroke survivors. Social support; activity opportunities and obligations; familiar and accessible environments; resources and reminders; and a step-by-step return facilitate stroke survivors to explore, adapt, resume, and maintain their activities. Social support is helpful at all stages of the process and particularly is important in case stroke survivors are fearful to explore their activity possibilities. The quantitative data identified largely endorsed these findings. No quantitative data were found in respect to the iterative nature of the process, familiar environments, or accessibility.

Conclusions: Reengagement in valued activities is a gradual process. In each stage of the process, several environmental factors play a role. During rehabilitation, professionals should pay attention to the role physical and social environmental factors have in reengagement poststroke and find ways to optimize stroke survivors' environments.

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Engagement in personally valued activities is a significant predictor of emotional well-being poststroke.¹ Self-perceived quality of life is associated with stroke-survivors' opportunities to have control over their own lives, resume valued

activities, and have reciprocal relations with family and friends.² Stroke survivors at least want to maintain those activities that are most important to their role, social position, and identity.^{3,4} A qualitative meta-study⁵ however showed that many stroke survivors struggle with the loss of valued activities (eg, work, social activities). For some, the struggle of

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renegotiating valued activities persisted for many years after the onset of stroke.⁴

Whether stroke survivors manage to resume their valued activities not only depends on the nature and severity of their impairments, but also on features of their living environment.⁶⁻⁸ Back in the 1930s, Lewin already stated that behavior (B) is a function (f) of the person (P) and the person's environment (E), which is expressed in what is known as the Lewin equation: $B = f(P, E)$.⁹ Early pioneers in rehabilitation research were familiar with person-environment theories such as Lewin's.⁶ However, during the years to follow, disability research focused on the stroke survivor's impairments and ability to adjust, leaving the role of the environment unattended.^{6,7} In current disability theories, the specific nature of environmental influences remains largely unexplained.^{6,10,11} Further theory development on this subject is warranted to predict rehabilitation outcomes, recognize stroke survivors at risk, and develop new ways to enhance reengagement in valued activities.^{6,7,11,12} Because the environment is very broad and it is undoable to map out all of its aspects, to construct an adequate general theory on environmental influences, identification of only those aspects that play a major role is required.⁶

To understand the effect of the environment on valued activities poststroke more precisely, we conducted a systematic review of the relevant scientific literature. In the context of this review, valued activities were defined as activities that were voluntarily chosen, were common to stroke survivors' own living situations, and were of specific value to them for reasons of role maintenance, social position, or identity. In accordance with the widely used *International Classification of Functioning, Disability and Health* (ICF), environmental factors were defined as "those factors that make up the physical, social and attitudinal environment in which persons live and conduct their lives."^{13(p16)} The ICF environmental factors are classified in 5 main chapters: products and technology; natural environment and human-made changes to environment; support and relationships; attitudes; and services, systems, and policies.¹³

Environmental factors can effect valued activities in various ways. They can work as a facilitator or a barrier to activity performance. One particular environmental factor (eg, a ramp) can be a facilitator in one situation and a barrier in another (eg, a wheelchair user vs someone with poor walking balance entering a house). Barriers and facilitators applying equally to everyone within certain circumstances (eg, cultural, climatic) can be referred to as scene setters.¹⁴ Environmental factors can be classified as independent, mediating, or moderating. Independent factors affect reengagement in valued activities regardless of their association to other factors. Mediating factors are part of a causal chain of factors ultimately shaping reengagement, and moderating factors modify the causal effect between ≥ 1 factors and reengagement.¹⁰ Environmental factors can play a role in various direct and indirect ways: lack of money can be a direct barrier to traveling, whereas discouragement from others can indirectly hinder this activity because of its demoralizing effect. Reverse or reciprocal effects are also possible: colleagues' positive attitudes can encourage stroke survivors to return to work, whereas stroke survivors' successful reengagement efforts in turn can lead to

colleagues having more positive attitudes. Not all environmental factors have an equivalent effect: it is not clear whether environmental barriers are summative or whether one barrier creates a deal breaker, exclusively disrupting reengagement in valued activities regardless of all other factors present.¹² It is also not clear if some specific factors can surmount the negative effects of several others.¹²

It is largely unknown what specific role the environmental factors play in the process of reengagement in valued activities poststroke. It is also not clear what can be done to optimize stroke survivors' environments. By conducting a meta-synthesis on the available qualitative and quantitative data on this topic, we believed it would be possible to further clarify the role of the environment. The following research question was formulated: In what way, according to the scientific knowledge available, do environmental factors influence reengagement in valued activities poststroke and what are the implications of these findings on rehabilitation practices and future research?

Methods

Procedure

In this study the ICF was used as a starting point to identify literature about valued activities poststroke. The ICF activity and participation section describes all human activities. It consists of 9 chapters (chapters d1–d9). Lower ICF activity and participation categories generally relate to basic tasks and actions, and higher categories relate to engagement in (complex) life situations.⁶ Although, in fact, there is no clear subdivision, several authors^{6,14} make a distinction between activities that can be performed at an individual level (activities) and activities that are performed with others (participation). In this study it however was argued that, from the perspective of stroke survivors resuming their valued activities, only activities that were potentially important to the stroke survivor's role, social position, or identity (eg, conversing with friends, work) were useful to include in the review study. Activities that were more instrumental to this (eg, thinking, solving problems) were not included. Therefore, all studies describing activities that could be classified with ICF code d3.500 (starting a conversation) and up were included for further analysis. An exception to this were some mobility activities that, although more instrumental by nature, had higher ICF d codes (eg, climbing, crawling [d4.55])

Literature was identified from a variety of disciplines in PubMed, CINAHL, and PsycINFO for the period June 1983 to June 2015 (initial search to June 2013, additional search to June 2015). Because only a few suitable Medical Subject Headings (MeSH) exist on environmental factors and relevant keywords vary widely, a search strategy consisting of 2 steps was used: first, all studies on stroke and valued activities were identified; second, of these, all articles containing an author's description of how environmental factors influence stroke survivors' valued activities were extracted. The following search strings were combined (PubMed): (1) stroke (MeSH terms: relevant subheadings); (2) (human activities[MeSH] OR education[MeSH] OR transportation[MeSH] OR mobility OR work OR employment OR volunteer OR activities of daily living OR self care OR family functioning OR family life OR relationship* OR domestic life OR civic life OR social functioning OR communication); (3) (disabilit* OR disabl* OR participat* OR

List of abbreviations:

ICF *International Classification of Functioning, Disability and Health*

MeSH *Medical Subject Headings*

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