Home or Away? Choosing a Setting for a Falls-Prevention Program for People with Multiple Sclerosis

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Evidence suggests that choice of setting may be important in influencing the outcomes of rehabilitation programs, as well as optimizing participant satisfaction and adherence. This article aims to examine the factors that may inform the choice of setting for a falls-prevention program tailored to the needs of people with multiple sclerosis, including the influence of setting on program effectiveness, participant engagement, cost, and sustainability. Any new program should ensure that the choice of setting is informed by the intended program outcomes as well as an awareness of the opportunities and challenges presented by each type of setting. Evaluations of falls programs for older people suggest that immediate outcomes are similar regardless of setting; however, long-term outcomes may differ by setting, possibly owing to differential effects on adherence. Programs based away from home may offer benefits in terms of maintaining motivation, providing peer-support opportunities, and allowing regular access to facilitator input, while home-based programs offer unique opportunities for context-based practice and the integration of falls-prevention activities into real life. Additionally, home-based programs may address some of the long-term feasibility issues associated with programs away from home. A "mixed" program incorporating elements of home- and community-based activity may be the most sustainable and effective choice to achieve both long- and short-term goals within a falls-prevention program. However, currently there are significant gaps in knowledge relating to comparative program outcomes, cost, and long-term sustainability. ***Int J MS Care.*** **2014;16:186–191.**

Rehabilitation interventions may be delivered in a wide range of settings and formats. Frequently, the choice of program setting is not an explicit element of the planning and development process. Instead, it may be driven by financial, pragmatic, historical, or political factors. However, evidence suggests that program setting may be important in optimizing participant satisfaction and adherence, as well as potentially influencing the outcomes of the program.[1] As part of the work of the International MS Falls Prevention Research Network, evidence regarding the role and considerations for program setting were reviewed. This article aims to examine the factors that may inform the choice of setting for a falls program tailored to the needs of people with multiple sclerosis (MS), including the influence of setting on program effectiveness, participant engagement, cost, and sustainability. As evidence specifically relating to falls rehabilitation programs in MS is limited, relevant sources from other areas of the literature have been integrated to highlight some of the potential challenges and opportunities within this aspect of the program design.

In many countries, health rehabilitation programs have historically been based in health-care settings, with individuals attending specific programs, often for relatively long periods of time.[2] Over the past 20 years

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there has been a global trend toward health-care delivery away from hospitals and closer to patients' homes, with the aim of increasing cost-effectiveness, access, and sustainability. In many countries this trend has included a greater emphasis on the integration of health-focused programs into the wider community. Alongside these changes is the recognition that for people managing long-term conditions, engagement in ongoing hospital-based rehabilitation programs may be incompatible with an increasing emphasis on facilitating self-management, and the aim of providing person-centered (rather than service-based) care.

For individuals who are not inpatients (eg, in acute-care hospitals or rehabilitation hospitals), possible settings for falls interventions can be organized into three broad categories: home-based, within the local community, or health-care facility–based. While home-based programs engage participants on an individual basis, community- and hospital-based programs may include an element of group participation, with varying degrees of individualization within the program.

Influence of Program Setting on Program Effectiveness

Primary Outcomes

The limited number of MS studies specifically evaluating falls outcomes makes evaluation of the effect of setting problematic. However, the existing literature suggests that improvements in falls risk, knowledge, and awareness of falls and balance ability can be achieved with home-based,[3] community,[4,5] and health-care facility–based programs.[6] Within the literature on older adults, meta-analysis suggests that falls programs in all three settings lead to a reduction in falls rate and falls risk of a similar magnitude.[7] One of the issues in evaluations based on meta-analysis is the significant degree of heterogeneity within the various interventions, which limits direct comparison between the effects of different programs delivered in differing settings. Within Gillespie's 2012 review of 159 trials of falls interventions in older people, only two studies were included that compared the outcome of a standardized multifactorial falls intervention across settings. Both these studies compared the outcomes of a falls program when delivered in a community medical practice or specialist hospital setting; the findings of both have suggested no significant differences in rate of falls, risk of falling, or risk of fracture between the settings after 1 year.[7] Similarly, in evaluations of the effectiveness of pulmonary and cardiac rehabilitation programs, no differences were found in primary outcome whether the program was delivered in hospital or community settings.[8,9]

Adherence and Long-Term Engagement

One of the key criticisms of existing falls programs is that while immediate post-intervention evaluation may demonstrate improvements in falls outcomes, these improvements may not be sustained over the longer term. In reviews of falls programs for older people, the finding that many programs demonstrate patterns of high adherence initially, followed by a drop-off of engagement over time, has been cited as a possible contributory factor.[10] Within cardiac rehabilitation, a systematic review comparing the outcomes of home-based and health-care facility–based programs has suggested that although immediate outcomes were similar, rates of adherence to both exercise and lifestyle modification were superior among participants of home-based programs, in both the short and the longer terms.[9]

Factors Influencing Choice of Program Setting for an MS Falls Program

Home-Based Programs

Home-based management programs for people with MS have been demonstrated to be both feasible and cost-effective[11]; however, little comparative analysis has been undertaken relating to rehabilitation programs. Home-based models include those that are essentially self-administered and those that include periodic review by external facilitators. Evaluation of home-based falls programs for older people has suggested that major advantages include the convenience for participants and the "real-life" nature of the setting,[12] allowing environment-modification advice and exercise components of the program to be integrated into daily activities from the outset.[13] Home-based programs can also foster skill mastery by allowing the participant to practice skills in the home that have been collaboratively selected with the interventionist to provide "just the right challenge."[14] A concern with home-based programs is the potential for risk of injury with unsupervised exercise. There is, however, minimal evidence supporting this, and the few investigations that have included home-based exercise programs in people with MS have reported few adverse events.[3,15]

Individually tailored home-based programs may lead to improved perceptions of control and ownership among participants, which could improve self-efficacy.

Greater self-efficacy may positively affect decisions relating to the adoption of home and lifestyle modifications, and home-based programs may allow greater choice over type, planning, and progression of exercise activities.[14,16] Programs based predominantly at home may also facilitate the involvement of family members as sources of support, feedback, and motivation, factors that have been highlighted as important drivers of the maintenance of behavior change and program engagement in falls programs for older people.[17] Conversely, this may lead to an increase in carer burden,[12] potentially negatively affecting the long-term acceptability of the program for some participants and their relatives.

Long-term adherence to home-based falls programs for older people has been demonstrated to be achievable in some instances,[14,18] although long-term facilitator follow-up may be needed to achieve this. Facilitator input is likely to represent a significant financial and staffing commitment, particularly in geographically dispersed or remote locations. The development of telerehabilitation and e-health interventions presents an opportunity to support engagement in a cost-effective manner[19]; however, use and evaluation of such approaches is currently limited. Another consideration is how and where the preliminary training takes place, as it has been suggested that in-home training delivered by external facilitators may be viewed as intrusive and an unnecessary imposition.[16]

Programs Away from Home

A number of studies suggest that engaging in both exercise- and education-based programs away from home is an attractive option for people with MS. Evaluations of participant experiences of engagement in such programs consistently highlight the advantages of group interaction as a factor motivating attendance, ongoing engagement in exercise, and commitment to maintaining behavior change.[20] Moreover, findings suggest that an opportunity for shared experiences within a program may encourage participants to challenge themselves through vicarious experience of others' achievements.[5,21]

Additionally, participants of programs away from home highlight the regular access to "expert" support, guidance, and facilitation as a positive factor influencing satisfaction with and engagement in rehabilitation programs.[22] Given that both education- and exercise-based aspects of falls management will require participants to undertake activities that they find challenging, access to this type of support and feedback may be essential to ensure successful outcomes. In addition, regular contact with a program facilitator may improve the ability of interventions to be tailored specifically to the needs of individual participants, as well as providing valuable feedback cues.[23] However, programs away from home are unlikely to be frequent enough to provide a sufficient intensity of exercise to have a positive impact on falls reduction; therefore, participants will probably also need to engage in a significant amount of home-based practice. Some evaluations of community-based programs suggest that this can be problematic, with participants reporting that they lacked confidence to exercise away from the perceived safety of a supervised environment.[24] Providing opportunities for participants to learn how to follow through and apply program content away from the program setting is likely to be key in addressing this issue.

Research has shown that there are a number of potential challenges associated with programs situated in settings away from home. Many individuals highlight logistic issues (such as availability of transportation and accessibility factors) as being major barriers to engagement, particularly with programs requiring regular attendance over a long period.[17,25] Logistic barriers may be a particular issue with programs based in central hospital facilities, which may be located relatively far from participants' homes,[26] or in areas with a widely dispersed population. An interesting counterargument is that the challenges associated with getting to and from programs away from home may offer a significant opportunity for problem-solving and the application of skills learned within the program itself, providing a feeling of achievement for participants, which may in turn encourage further engagement.[27]

Another issue that has been identified as a barrier to engagement in programs away from home is the time and energy required for regular attendance, representing an additional burden on people already dealing with the challenges of ongoing health conditions.[17] This may be a particularly important consideration in developing programs for people with MS given the prevalence of fatigue as a significant symptom.[28] Additionally, given that many potential participants in a falls program for people with MS may already be balancing work, family, and health commitments, attending a program away from home at specific times, often during the workday, may be difficult.

Community Settings

Community-based settings in venues that are not health-focused are frequently cited as being attractive to

participants, as they are perceived as being more socially acceptable and "normal," and may be more convenient to access.[12,29] However, the use of community gym facilities has been associated with poor engagement and adherence with programs,[9] with participants perceiving them as "unfriendly" and noninclusive.[30] In people with general physical disabilities, age and gender were found to be predictive of adherence to gym-based programs, with young women being least likely to attend.[31] Conversely, in a program based in church halls and community centers, adherence was greatest in younger women.[32] In MS, studies have suggested that a range of non-hospital-based settings are seen as acceptable, but that there appears to be a preference for settings where exercise can be undertaken away from the general population.[33]

Health-Care Settings

Traditionally, many rehabilitation programs have been delivered in hospital or health-care–facility settings. Research suggests that such programs are perceived as "safe" and the staff as "knowledgeable" by participants[34]; moreover, the availability of support and backup if required may give confidence to program facilitators.[9] However, some hospital-based falls program trials have experienced high levels of attrition.[35] It has been suggested that contributing factors may be that hospital-based programs may promote an "illness" rather than a "wellness" focus that is unappealing to participants,[12] and that the accessibility and logistics issues associated with attendance may be greater than at other venues.[26]

Discussion

In reviewing the literature relating to the choice of setting for falls rehabilitation programs, it becomes evident that each setting may have strengths and weaknesses and that a "black or white" choice may not be possible. In terms of achievement of primary outcomes, there seems to be little difference in initial effectiveness between the settings; however, maintaining ongoing engagement appears to be a key consideration in achieving a sustained change. In this respect, ensuring ongoing home practice of both the educational and exercise elements of a program is likely to be key to ongoing behavior change and sustained improvements in balance and stability parameters, regardless of whether programs are based within or outside of the home.[36] As such, programs with a strong home emphasis from the outset may have an advantage.

There is evidence, however, that programs delivered away from home may offer significant benefits both to individuals and to organizations. Programs away from home are likely to facilitate peer learning and support opportunities, which have been shown to facilitate ongoing program engagement and the maintenance of behavior change. Additionally, programs delivered in a group setting may offer "economies of scale" to a provider, enabling more individuals to access the program at a time. However, the significant logistic and time issues for individuals attending a program away from home mean that "local" venues are likely to be preferred. In areas with a relatively low population density of people with MS, or those with a wide geographic spread, achieving the critical mass necessary to make such programs sustainable may be a challenge. One factor worth considering is the frequency with which participants would be expected to attend. A program with a relatively low number of sessions away from home, or where sessions are spread over time, might be more attractive to people than one requiring attendance once or twice a week for a longer period. In this way, the benefits of a group program could be offered while minimizing some of the logistic barriers.

In terms of settings away from home, the evidence appears to indicate that community venues may be preferable to health-care–based settings. This is in line with the current shift in emphasis toward self-management for people with long-term conditions, in which greater use of community settings is being encouraged. A community and/or home-based program is therefore more likely to fit with current health-care commissioning and service delivery models, which is an important consideration in ensuring the long-term sustainability of a falls program.

The existing evidence base still leaves many questions unanswered. Key weaknesses in current research include a lack of economic evaluation, limited long-term follow-up, and very few evaluations comparing the effect of setting on similar programs. Furthermore, the majority of studies involve individuals who have volunteered to participate in a particular program, which may suggest a preexisting preference for specific types of programs or program settings. Few studies have included individuals who chose not to participate, or who dropped out of programs following initial recruitment; it could be argued that the evidence presented is therefore relatively unrepresentative of the wider population. Those individuals who are most challenging to engage are likely to be

those whose perspectives are relatively underrepresented within the existing evidence base.

Another issue is the relatively limited MS-specific evidence. While learning from the evidence from other groups and programs is essential, simply applying models and programs from one condition to another may be unsuccessful.[7] While this may be due in part to factors related to the content of such programs, preferences for specific program settings and structures may also differ between cohorts. For example, people with MS who fall tend to be significantly younger than participants in other falls programs, and differences in social, economic, environmental, and personal factors may affect their program setting preference.

Conclusion

Several factors may influence the final decision relating to the setting for an MS-specific falls program. The existing evidence suggests that initial outcomes (such as reduction in falls rates) may be similar regardless of setting. It remains unknown whether this is also the case for outcomes such as participation and dynamic mobility, since these aspects have yet to be evaluated in different settings. This requires further exploration.

Maintaining behavior change over the long term has been identified as a challenge in many falls programs; however, programs that can facilitate ongoing use of falls-prevention strategies may be likely to offer greater long-term benefits. In this respect, programs with a strong home-based focus are typically more convenient for participants, and offer benefits associated with being situated in a real-life context. However, unless home-based programs are developed to include group-interaction opportunities (eg, through telehealth or online facilities), they provide fewer opportunities for participants to learn from and with others, and to access the facilities typically available in a health-care setting (including equipment, multidisciplinary staffing). It may be possible to achieve a mixed-settings model, which draws on the benefits of both settings while minimizing any associated barriers. For instance, the program could be predominantly home-based from the outset but include a number of community group-based sessions interspersed throughout to support progress, monitor change, and maintain motivation.

The final choice of setting must be compatible with the overall aims and content of the program and suited to the intended service users. Further research specifically involving people with MS in the decision-making process would be valuable to explore different options further. □

PracticePoints

- Program setting is an integral aspect of program development and must be compatible with program aims and service user needs.
- Home-based programs offer unique opportunities for context-based practice and the integration of falls-prevention activities into real life.
- Community-based programs may provide greater motivational, peer, and facilitator support opportunities.

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References

1. Hale LA, Smith C, Mulligan H, Treharne GJ. "Tell me what you want, what you really really want. . . .": asking people with multiple sclerosis about enhancing their participation in physical activity. *Disabil Rehabil.* 2012;34:1887–1893.
2. Royal College of Nursing. *Moving Care to the Community: An International Perspective.* London, UK: Royal College of Nursing; 2013:40.
3. Sosnoff JJ, Finlayson M, McAuley E, Morrison S, Motl RW. Home-based exercise program and fall-risk reduction in older adults with multiple sclerosis: phase 1 randomized controlled trial. *Clin Rehabil.* 2014;28:254–263.
4. Coote S, Hogan N, Franklin S. Falls in people with MS who use a walking aid: prevalence, factors and effect of balance and strengthening interventions. *Arch Phys Med Rehabil.* 2013;94:616–621.
5. Finlayson M, Peterson EW, Cho C. Pilot study of a fall risk management program for middle aged and older adults with MS. *NeuroRehabilitation.* 2009;25:107–115.
6. Cattaneo D, Jonsdottir J, Zocchi M, Regola A. Effects of balance exercises on people with multiple sclerosis: a pilot study. *Clin Rehabil.* 2007;21:771–781.
7. Gillespie LD, Robertson MC, Gillespie WJ, et al. Interventions for preventing falls in older people living in the community. *Cochrane Database Syst Rev.* 2012;9:CD007146.
8. Waterhouse JC, Walters SJ, Oluboyede Y, Lawson RA. A randomised 2 × 2 trial of community versus hospital pulmonary rehabilitation for chronic obstructive pulmonary disease followed by telephone or conventional follow-up. *NIHR Health Technol Assess.* 2010;14.
9. Dalal H, Zawada A, Jolly K, Moxham T, Taylor RS. Home based versus centre based cardiac rehabilitation: Cochrane systematic review and meta-analysis. *BMJ.* 2010;340:11–13.
10. Nyman SR, Victor CR. Older people's participation in and engagement with falls prevention interventions in community settings: an augment to the Cochrane systematic review. *Age Ageing.* 2012;41:16–23.
11. Pozzilli C, Brunetti M, Amicosante AMV, et al. Home based management in multiple sclerosis: results of a randomised controlled trial. *J Neurol Neurosurg Psychiatry.* 2002;73:250–255.
12. Dickinson A, Machen I, Horton K, Jain D, Maddex T. Fall prevention in the community: what older people say they need. *Br J Community Nurs.* 2006;16:174–180.
13. Hawley H. Older adults' perspectives on home exercise after falls rehabilitation: understanding the importance of promoting healthy, active ageing. *Health Educ J.* 2009;68:207–218.

14. Clemson L, Fiatarone MA. Integration of balance and strength training into daily life activity to reduce rate of falls in older people (the LiFE study): randomised parallel trial. *BMJ*. 2012;4547:1–15.
15. DeBolt LS, McCubbin JA. The effects of home-based resistance exercise on balance, power, and mobility in adults with multiple sclerosis. *Arch Phys Med Rehabil*. 2004;85:290–297.
16. Bunn F, Dickinson A, Barnett-Page E, McInnes E, Horton K. A systematic review of older people's perceptions of facilitators and barriers to participation in falls-prevention interventions. *Ageing Soc*. 2008;28:449–472.
17. Child S, Goodwin V, Garside R, Jones-Hughes T, Boddy K, Stein K. Factors influencing the implementation of fall-prevention programmes: a systematic review and synthesis of qualitative studies. *Implement Sci*. 2012;7:91.
18. Campbell AJ, Robertson MC. Comprehensive approach to fall prevention on a national level: New Zealand. *Clin Geriatr Med*. 2010;26:719–731.
19. Bombardier CH, Cunniffe M, Wadhwani R, et al. The efficacy of telephone counseling for health promotion in people with multiple sclerosis: a randomized controlled trial. *Arch Phys Med Rehabil*. 2008;89:1849–1856.
20. Rimmer JH, Riley B, Wang E, Rauworth A, Jurkowski J. Physical activity participation among persons with disabilities. *Am J Prev Med*. 2004;26:419–425.
21. Plow MA, Resnik L, Allen SM. Exploring physical activity behaviour of persons with multiple sclerosis: a qualitative pilot study. *Disabil Rehabil*. 2009;31:1652–1665.
22. Learmonth YC, Marshall-McKenna R, Paul L, Mattison P, Miller L. A qualitative exploration of the impact of a 12-week group exercise class for those moderately affected with multiple sclerosis. *Disabil Rehabil*. 2013;35:81–88.
23. Dodd KJ, Taylor NF, Denisenko S, Prasad D. A qualitative analysis of a progressive resistance exercise programme for people with multiple sclerosis. *Disabil Rehabil*. 2006;28:1127–1134.
24. Ballinger C, Clemson L. Older people's views about community falls prevention: an Australian perspective. *Br J Occup Ther*. 2006;69:263–270.
25. Keating A, Lee AL, Holland AE. Lack of perceived benefit and inadequate transport influence uptake and completion of pulmonary rehabilitation in people with chronic obstructive pulmonary disease: a qualitative study. *J Physiother*. 2011;57:183–190.
26. Evron L, Schultz-Larsen K, Fristrup T. Barriers to participation in a hospital-based falls assessment clinic programme: an interview study with older people. *Scand J Public Health*. 2009;37:728–735.
27. Rolfe DE, Yoshida K, Renwick R. Negotiating participation: how women living with disabilities address barriers to exercise. *Health Care Women Int*. 2009;30:743–766.
28. Smith C, Hale L, Olson K, Schneiders AG. How does exercise influence fatigue in people with multiple sclerosis? *Disabil Rehabil*. 2009;31:685–692.
29. Wong ELY, Woo J, Cheung AWL, Yeung P. Determinants of participation in a fall assessment and prevention programme among elderly fallers in Hong Kong: prospective cohort study. *J Adv Nurs*. 2011;67:763–773.
30. Rimmer JH, Chen MD, McCubbin JA, Drum C, Peterson J. Exercise intervention research on persons with disabilities: what we know and where we need to go. *Am J Phys Med Rehabil*. 2010;89:249–263.
31. Tai SS, Gould M, Smith P, Iliffe S. Promoting physical activity in general practice: should prescribed exercise be free? *J R Soc Med*. 1999;92:65–67.
32. Munro JF, Nicholl JP, Brazier JE, Davey R, Cochrane T. Cost effectiveness of a community based exercise programme in over 65 year olds: cluster randomised trial. *J Epidemiol Community Health*. 2004;58:1004–1010.
33. Aubrey G, Demain S. Perceptions of group exercise in the management of multiple sclerosis. *Int J Ther Rehabil*. 2012;19:557–565.
34. Arnold E, Bruton A, Ellis-Hill C. Adherence to pulmonary rehabilitation: a qualitative study. *Respir Med*. 2006;100:1716–1723.
35. Conroy S. A multicentre randomised controlled trial of day hospital-based falls prevention programme for a screened population of community-dwelling older people at high risk of falls. *Age Ageing*. 2010;39:704–710.
36. Sherrington C, Whitney JC, Lord SR, Rober DH, Rober GC, Close JCT. Effective exercise for the prevention of falls: a systematic review and meta-analysis. *J Am Geriatr Soc*. 2008;56:2234–2243.

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