



Survey

A survey of therapists views on reducing sedentary behaviour in an acute clinical setting

Juliet A Harvey*, Joanna R McBain and Heather Cameron

Physiotherapy Professional Development Team, NHS Greater Glasgow and Clyde, West Glasgow ACH, Dalnair Street, Glasgow, G3 8SJ, Scotland, UK

* **Correspondence:** Email: Juliet.Harvey@ggc.scot.nhs.uk; Tel: 0141-201-0133.

Abstract: Reducing sedentary behaviour is a priority in both the clinical and research settings. This survey aimed to gather the views on reducing sedentary behaviour from physiotherapy, occupational therapy and healthcare support staff working in the acute healthcare setting. Sixty-nine occupational therapy and physiotherapy staff completed an online survey during March and April 2018. The results were analysed by manual thematic analysis. Barriers to sedentary behaviour have been categorised under the following themes: patient factors, cultural factors, environmental factors and organisational factors. Solutions to facilitate change were themed as: move early and often, self-management, education, culture, environment, collaboration, social engagement, roles and sharing. The findings provide a basis for changing behaviour from a practitioner perspective.

Keywords: sedentary behaviour; sedentary lifestyle; barriers; clinical; rehabilitation; physiotherapy; occupational therapy; healthcare; health service

Abbreviations: NHS = National Health Service; METS = Metabolic Equivalent of Task

1. Introduction

Sedentary behaviour is defined by both posture (sitting or reclining) and low energy expenditure (< 1.5 Metabolic Equivalent of Task [METS]) during waking hours [1]. Previous research examining sedentary behaviour of older adults in the hospital environment hospital shows that 80–98% of the day, in acute care, is reported to be sedentary when measured by inclinometer [2–7]. Reducing sedentary behaviour is a clinical and research priority [8–10]. Sedentary behaviour and physical

activity within the inpatient setting has long been the focus of physiotherapy and occupational therapy interventions, however the #endpparalysis campaign has brought attention on this area both internationally and across a wider group of healthcare professions [11]. The principle of the campaign is that if patients get up, get dressed and get moving it will improve their recovery by reducing harmful effects of deconditioning [11].

In order to change culture and behaviour in an organisation it is important to both scope the current situation and understand barriers and opportunities to change as described by those working within the system [9,12]. A staff survey is suggested by National Institute of Clinical Excellence to gain insight into barriers and opportunities for change within healthcare systems [12]. To the authors' knowledge a survey has not been published identifying barriers and opportunities to reduce sedentary behaviour in the clinical setting. The aim of this survey was to determine barriers and solutions to reduce sedentary behaviour in the inpatient setting as described by staff working in physiotherapy and occupational therapy teams across the largest health board in Scotland.

2. Materials and methods

This survey is a service evaluation of current services within National Health Service (NHS) Greater Glasgow and Clyde (GGC) Health Board. It forms the beginnings of a project to consider how we provide opportunities for inpatients to be more active and less sedentary during admission to these acute areas. In light of this, the survey is not considered to be research, but a questionnaire to support a service improvement project [13]. Survey participants were current employees of National Health Service (NHS) GGC Health Board and therefore ethical approval was not required to undertake the survey, however permission to conduct the survey was sought and granted by the physiotherapy and occupational therapy professional leads at NHS GGC. The survey was distributed by email and newsletter to occupational therapy and physiotherapy team leads (N = 43) across NHS GGC (Acute Division). They were asked to forward to staff working in the inpatient setting. The self-reporting questionnaire was managed via Webropol (Webropol UK, Version 3.0 www.webropolsurveys.com) and the data collection period was 29th March 2018 to 30th April 2018. The survey can be found in Appendix 1. The first page of the survey gave information on the survey purpose, along with assurances of anonymity and confidentiality. Participants were asked to state their: profession, clinical area of work and their grade according to Agenda for Change (AFC) pay scale [14]. These descriptive statistics were collected to define the characteristics of the respondents. All qualitative data was analysed by manual thematic analysis by JH and agreed by JMcB and HC. The responses were grouped into barriers and solutions to reducing sedentary behaviour in the inpatient setting. Question 5 asked respondents to report barriers to reducing sedentary behaviour in the inpatient setting. Question 6 asked about opportunities to change sedentary behaviour, Question 7 asked about strategies to change sedentary behaviour and Question 8 asked for any further comment. The responses of Question 6–8 have been brought together as “solutions” to changing sedentary behaviour. Responses to Question 8, which did not fit with afore mentioned themes, are presented separately in Appendix 2.

3. Results and discussion

3.1. Respondents

The survey was opened 182 times with 85 individuals starting the survey and 69 members of staff returned the completed survey (62% physiotherapist; 33% occupational Therapist; 5% healthcare support workers). The response represents approximately 12.6% of the total physiotherapy/occupational therapy workforce of GGC working with inpatients. There was good representation across career framework bands (Band 3: 1%; Band 4: 3%; Band 5: 13%; Band 6: 57%; Band 7: 23%; Band 8: 3%) and specialties (Elderly Medicine: 26.1%; Medical 23.2%; Stroke: 13.0%; Orthopaedics 7.2%; Surgical 7.2%; Spinal Injuries: 5.8%; Neurology 4.3%; Physical Disability: 4.3%; Oncology: 2.9%; Cystic Fibrosis: 2.9%; Neuro-Surgery: 1.4%; Vascular 1.4%). The demography of survey respondents clearly illustrates the pervasive nature of the issue of sedentary behaviour. Distribution of respondents across professions and grade was determined to be representative of the staffing ratios with the majority of responses from elderly medicine, general medicine, orthopaedics and surgical care. These clinical teams also see the highest volume and through put of patients.

3.2. *Barriers to reducing sedentary behaviour*

The full thematic analysis data are available in Appendix 2. A summary of barriers to changing sedentary behaviour in the inpatient setting are presented. They were themed under 4 headings which are summarized in Table 1.

Table 1. Barriers to reducing sedentary behaviour in the inpatient setting

Barrier	Summary of most common
Patient factors	Physical, mental, behavioural factors, beliefs and attitudes
Cultural factors	Family perception, beliefs and attitudes "To do for" rather than "with" patient Patient sick role supported Risk averse culture
Environmental factors	Lack of equipment: chairs and moving and handling equipment particularly cited.
Organisational factors	Lack of communal space and incentive to get away from the bed space. Staff levels, staff time and staff training Competing procedures and policies

3.3 *Solutions to reducing sedentary behaviour*

The full thematic analysis data are available in Appendix 2. The solutions were themed under 9 headings and are summarized in Table 2.

Table 2. Solutions to reducing sedentary behaviour in the inpatient setting

Solutions	Summary of most common
Move early and often	Walking for daily activities and assessment i.e. to bathroom, dining area, therapeutic or diagnostic space Prescribe non-sedentary behaviour Specific models mentioned: care rounding charts, position change chart, enhanced recovery after surgery, active care plan
Self-Management	24 hr rehabilitation Assessment, goal setting and treatment planning Support/encouraged/empowered to self-manage
Education	Education required for patients, families and staff Delivered with consistency via a variety of modes (face-to-face, written literature, posters)
Culture	Adopt a rehabilitation ethos “Get up, get dressed, get moving” model Keep to normal home routine where possible
Environment	Accessible, safe, communal space that is set up for activity Appropriate seating
Collaboration	Patient centred Working with families, carers, multidisciplinary team and specialist services
Social engagement	Classes, group, paired exercise/activities Encouraged to move around or out with the bed area
Roles	Roles particularly mentioned that could be better utilised were: volunteers, healthcare support workers and activity coordinators
Sharing	Sharing of knowledge and good practise Audit

4. Discussion

In considering the patient groups that are represented it is important to recognise there is a significant minority of individuals who, by the virtue of their condition, will be unable to safely participate in activity and for whom rest is the desired intervention. However, when examining the barriers identified by clinicians, it is clear from the relatively low citation of these factors that this is not perceived to be a predominant barrier to reducing sedentary behaviour in the ward environment.

The most frequently cited barriers in all identified themes related to beliefs, attitudes and behaviours, some of which will predate hospital admission. However, results clearly identify the adoption of the “sick role” by patients in the hospital environment as a significant barrier which is reinforced by multiple influences that are cited as barriers in their own right. For instance, well meaning family members and helpful staff, may actively disable patients; an approach that the physical and cultural environment supports. Figure 1 below attempts to illustrate the complex interactions of organisation (policy and processes) and environment and the combined influence of both on patients, carers and staff in creating a ward culture that supports sedentary behaviour.

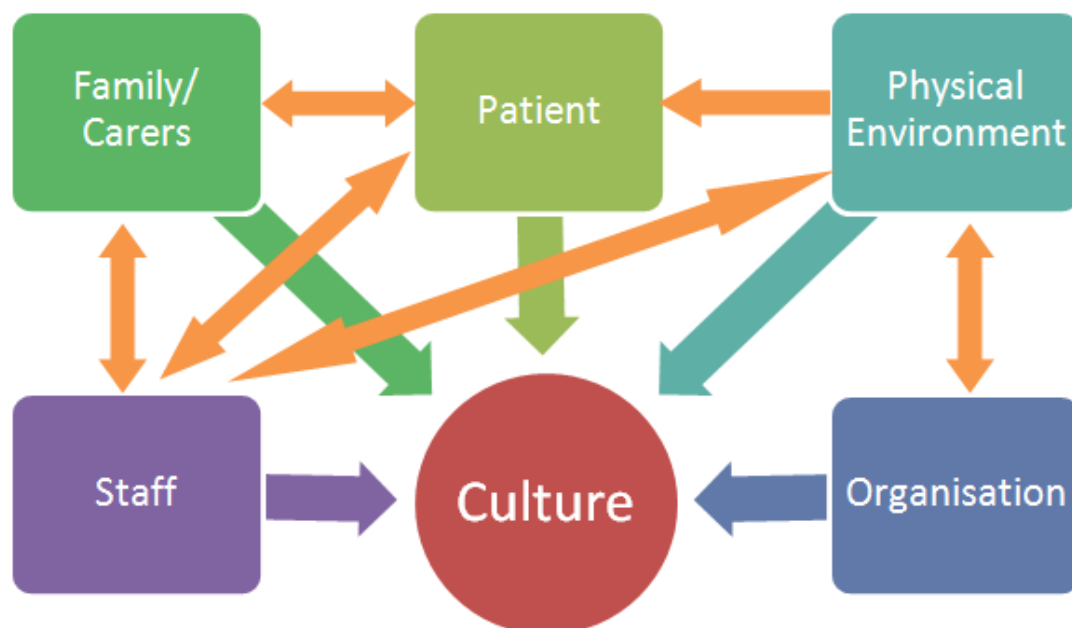


Figure 1. Illustrates the multi-directional influences which combine to create a ward “culture”.

Some of the specific challenges identified, illustrate well the tension between the conflicting agendas that staff are trying to negotiate in reducing sedentary behaviour. For instance, the move to individual patient rooms to safe guard patient privacy and dignity [15] rather than more traditional 4–6 bedded bays may have, as an unintended consequence, removed the opportunity for peer support, social interaction and impetus to move outside of the individual bed space. Further compounding this challenge is the removal of group dining rooms, TV rooms and communal bathroom areas where physical activity was necessary to engage with basic activities of day to day life. These changes to the physical environment not only reduce the individuals’ triggers to move, it makes distant monitoring of mobility challenging for ward staff, which in turn may increase the perceived risk of allowing patients to be independently mobile.

Risk is a repetitive theme identified as a barrier to reducing sedentary behaviour, from the explicit reference to a risk averse culture, to the more subtle fear/worry/anxiety of patients and their families. This is a further example of a well intentioned strategy, namely the laudable ambition to reduce falls in the hospital environment [16], having the unintended consequence of reducing overall patient activity which may in fact increase falls risk in the non-hospital environment due to the impact of deconditioning [17]. This agenda has encouraged the notion that mobility is the business of therapy staff, and as identified by the survey participants, this is now a barrier to ward staff encouraging patients to move in advance of therapies assessment.

The challenges in reducing sedentary behaviour are diverse, and while some are compounded by the policies and procedures of the ward environment, many policies offer solutions which we are yet to fully harness. The move to all day visiting, in theory offers an excellent opportunity for family and friends to support patients in active behaviours, from simply being out of bed and dressed to greet visitors, to walking to central facilities and outdoor spaces. This change in practise also offers the opportunity for family and friends, where appropriate, to be involved in the rehabilitation process

thereby helping to increase their understanding of the benefits of activity and the risks of prolonged sedentary behaviour. However, it is yet to be seen if this actually occurs in practise.

Given the complexity of culture as a concept and the many factors that influence the establishment of a sedentary behaviour culture, it is perhaps unsurprising that the possible mitigations identified by survey participants are many and varied. With 9 themes identified and a wide range of possible solutions within each theme understanding the interactions between themes is vital in the creation of any possible interventions to minimise sedentary behaviour, although identifying specific interventions is not within the scope of this article.

Education is a theme in itself, but is also a central concept in a number of the other themes. For instance, patients are unlikely to take a self-management approach [18] to their rehabilitation if they are not first taught how to go about this; staff are unlikely to change practise in relation to encouraging patients to be up, dressed, and moving unless they are educated in the relative risks and benefits of this practise for patients; and family members and carers are unlikely to support the patient to be active if they are not informed of the benefits and crucially the safety of this approach [19]. Nonetheless, whilst education is an important facet of many solutions offered by survey participants and may go some way to changing beliefs, it is most effective in changing behaviour when delivered as part of a multi-faceted intervention [20].

Clarke et al. [21] indicates that inpatients experience a lack of meaningful activity resulting in feeling of passivity, boredom, loss of self and feeling of distance from normal roles/routines. Further work is required involving all stakeholders working towards actions to mitigate sedentary behaviour. Creating a shared vision for the team, in its broadest sense with the patient and family as central players, is essential in fostering an activity focused ward environment. Furthermore all parties in contact with the patient, and their families, need to be delivering the same consistent message in both language and behaviour. The idea of activity as the norm was strongly emphasised across a number of solution themes, and is ultimately the premise of the #endpjjparalysis campaign [11]. The implementation of practise where, if able, patients are routinely up and dressed for the largest part of the day; that meals are eaten in a chair not in bed; and that independent activities of daily living are encouraged and assisted where required, would go some way to challenge the adoption of a sick role and encourage a self-management approach to recovery from acute illness and rehabilitation. In turn, the facilitation of self-management in the ward environment, with development of individual patient's knowledge, skills, and awareness of the tools that support this, would not only encourage independence and reduce sedentary behaviour in the ward environment, but ensures the patient is best prepared for returning to the home environment.

Strong leadership is required to help create the shared vision of an activity focused ward and to help the team navigate the complex landscape of "the organisation" [22]. The interactions of the multitude of policies that govern the physical environment and processes in the hospital environment, and their collective constraining influence on this agenda need to be understood and minimised. Strategic leadership to minimise the barriers presented by the physical environment, e.g., provision of suitable mobility aids, availability of group space, and staff resources will be essential to the success of this agenda. Although results suggest that while staff frequently cite these resource challenges as a significant barrier, few suggest changes to the physical environment as a solution. Those changes to the environment, which are proposed as possible solutions, are low cost and aimed at facilitating self-management and social engagement, e.g., distance markers on walls or clear signage above a patient's bed indicating their mobility status.

The result of this survey will inform service improvement moving forwards within NHS GGC acute services. The results may be of interest to other services, but are not necessarily directly applicable out with the area that the survey was conducted.

5. Conclusion

With most of the clinical teams and all levels of patient facing therapy staff represented, it is clear that the challenge of sedentary behaviour amongst our patients is widespread and persistent. The factors influencing sedentary behaviour of patients in the ward environment are complex and multi-faceted; in contrast many of the possible solutions offered are incredibly simple. The key challenge for therapy staff in leading this work is the engagement of the whole ward team to ensure consistency of approach and the messages delivered. Thus, strong leadership is required in driving change in this aspect of patient care.

Acknowledgements

Many thanks to the Occupational Therapy and Physiotherapy Teams of NHS Greater Glasgow & Clyde who took time to take part in the survey.

Conflict of interest

The authors have no conflict of interest.

References

1. Tremblay MS, Aubert S, Barnes JD, et al. (2017) Sedentary Behaviour Research Network (SBRN) Terminology Consensus Project process and outcome. *Int J Nutr Phys Act* 14: 75.
2. Egerton T, Maxwell DJ, Granat MH (2006) Mobility activity of stroke patients during inpatient rehabilitation. *Hong Kong Physiother J* 24: 8–15.
3. Grant PM, Granat MH, Thow MK, et al. (2010) Analyzing free-living physical activity of older adults in different environments using body-worn activity monitors. *J Aging Phys Act* 18: 171–184.
4. Zusman EZ, Dawes MG, Edwards N, et al. (2017) A systematic review of evidence for older adults' sedentary behavior and physical activity after hip fracture. *Clin Rehabil* 32: 679–691.
5. Brown CJ, Redden DT, Flood KL, et al. (2009) The underrecognized epidemic of low mobility during hospitalization of older adults. *J Am Geriatr Soc* 57: 1660–1665.
6. Ekegren CL, Beck B, Climie RE, et al. (2018) Physical Activity and Sedentary Behavior Subsequent to Serious Orthopedic Injury: A Systematic Review. *Arch Phys Med Rehabil* 99: 164–177.
7. Harvey JA, Chastin SFM, Skelton DA (2018) What happened to my legs when I broke my arm? *AIMS Medical Science* 5: 252–258.
8. Dogra S, Ashe MC, Biddle SJH, et al. (2017) Sedentary time in older men and women: an international consensus statement and research priorities. *Br J Sports Med* 51: 1526–1532.

9. Chastin SFM, De Craemer M, Lien N, et al. (2016) The SOS-framework (Systems of Sedentary behaviours): An international transdisciplinary consensus framework for the study of determinants, research priorities and policy on sedentary behaviour across the life course: a DEDIPAC-study. *Int J Behav Nutr Phys Act* 13: 83.
10. Scottish Government (2017) Allied Health Professions Co-Creating Wellbeing with the People of Scotland The Active and Independent Living Programme in Scotland. Crown Publishing, Scotland, UK. ISBN: 9781788510332.
11. Dolan B (2017) Mindset shift on PJ paralysis. *Nurs Stand* 31: 32.
12. National Institute for Healthcare and Clinical Excellence (2007) How to Change Practice: Understand, Identify and Overcoming Barriers to Change. NICE, England, UK. ISBN: 1846295653.
13. Health Research Authority (2018) Defining Research NRES guidance to help you decide if your project requires review by a Research Ethics Committee, Health Research Authority, England, UK. Available from: <https://researchsupport.admin.ox.ac.uk/sites/default/files/researchsupport/documents/media/defining-research.pdf>
14. NHS Education for Scotland (2018) Post Registration Career Development Framework for Nurses, Midwives and AHPs, NES, Scotland, UK. Available from: <http://www.careerframework.nes.scot.nhs.uk/>
15. Scottish Government (2017) Health and Social Care Standards: My support, my life. Crown Publishing, Scotland, UK. ISBN: 9781788510158.
16. Health Improvement Scotland (2018) Scottish Patient Safety Programme. Acute Adult Falls. Available from: https://ihub.scot/media/3720/201804_falls_dd_cpv10.pdf
17. Krumholz HM (2013) Post-Hospital Syndrome-An Acquired Transient Condition of Generalized Risk. *N Eng J Med* 368: 100–102.
18. Health and Social Care Alliance Scotland (2018) Self-Management and Co-Production. Available from: <https://www.alliance-scotland.org.uk/self-management-and-co-production-hub/what-is-self-management/>
19. Scottish Government (2012) CEL (12) Health Promoting Health Service: Action in Hospital Settings Available from: http://www.sehd.scot.nhs.uk/mels/CEL2012_01.pdf
20. Heath GW, Parra DC, Sarmiento OL, et al (2012) Evidence-based intervention in physical activity: lessons from around the world. *Lancet* 380: 272–281.
21. Clarke C, Stack C, Martin M (2018) Lack of meaningful activity on acute physical hospital wards: Older people's experiences. *Brit J Occup Ther* 81:15–23.
22. Scottish Government (2017) Everyone Matters: Workforce 2020 Vision, Implementation Plan 2018/19. Crown Publishing, Scotland, UK. ISBN: 9781788514453.



AIMS Press

© 2018 the Author(s), licensee AIMS Press. This is an open access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>)