

“Bed Mobility Matters”

The impact pressure redistribution mattresses have on bed mobility and functional independence, a health care professional (HCP) perspective

Rachael Durrans, PhD Student & Senior Lecturer in Physiotherapy, The University of Huddersfield (r.durrans@hud.ac.uk)
Supervisors: Dr Joanna Blackburn, Dr Leigh Flemming & Emeritus Professor Karen Ousey

Introduction

“A pressure ulcer (PU) is localised damage to the skin and/or underlying tissue” (NHS Improvements, 2018) resulting from sustained pressure, with immobility one of the biggest associated risk factors (NICE 2014). PU’s can cause detrimental impacts to an individual's physical, social and psychological wellbeing, along with increased costs, length of hospital stay, and care burden associated with their management (Gorecki et al. 2009). Guest et al. (2020) reported 202,000 PU’s in the United Kingdom (UK) during 2017/2018, resulting in an annual cost of £571.98million in terms of finance and human resources. A key recommendation in the prevention and management of PU’s is for an individual to keep moving so sustained pressure is reduced in areas of risk (NWCS, 2023). Bed mobility focuses on the ability for someone to move from one bed position to another and provides the basis for out-of-bed mobility (Johansson & Chinworth, 2018). These are key factors in maintaining functional independence, reducing pressure risks and sustaining the physical, mental and social wellbeing of an individual. However, hospitalisation and PU’s are often associated with bed rest, reduction in activity and subsequent deconditioning (Meira et al. 2015). In addition to movement, pressure redistribution mattresses are one of the many adjuncts used in the prevention and management of PU’s (EPUAP, NPIAP, PPIA, 2019; NICE, 2014). However, literature has highlighted negative impacts upon an individual's physical, social and psychological wellbeing when using them (Gorecki et al. 2012; Nixon et al. 2019), yet no further exploration of these has occurred.

Aim of the study

To explore the perceptions of health care professionals (HCP’s), including nurses and allied health professionals (AHP’s), on the impact pressure redistribution mattresses have upon bed mobility, functional independence and rehabilitation.

Method

A cross-sectional, online survey, with open and closed questions exploring mattress types, clinical areas and the impact mattresses have upon bed mobility was created through the online platform Qualtrics and distributed via social media (X – formerly Twitter, Facebook, LinkedIn), the Chartered Society of Physiotherapy Discussion Board iCSP and through flyers at Wounds UK 2022. Ethical approval was obtained from the University of Huddersfield, School of Human and Health Sciences – Research Ethics and Integrity Committee on the 14th October 2022.

Participant Inclusion Criteria

- An HCP registered with The Health and Care Professions Council (HCPC) or Nursing and Midwifery Council (NMC).
- Worked with an individual using a pressure redistribution mattress (in any form e.g. air, foam, hybrid).
- To be able to read and write in English.
- Participants needed to complete a minimum of 38% of the survey for responses to be included in data analysis.

Data Collection and Analysis

The survey was available to participants between 31st October 2022 and 16th December 2022.

Descriptive statistics were used with analysis occurring per topic section of questions (e.g. mattress types, impact on mobility).

Sample

A convenience sample was recruited through the lead researchers’ personal and professional networks. Snowballing occurred through sampling, with word of mouth from participants and shares on social media. The survey was closed when there was a significant reduction of participants completing the survey over a period of two weeks (3 completed within 2 weeks).

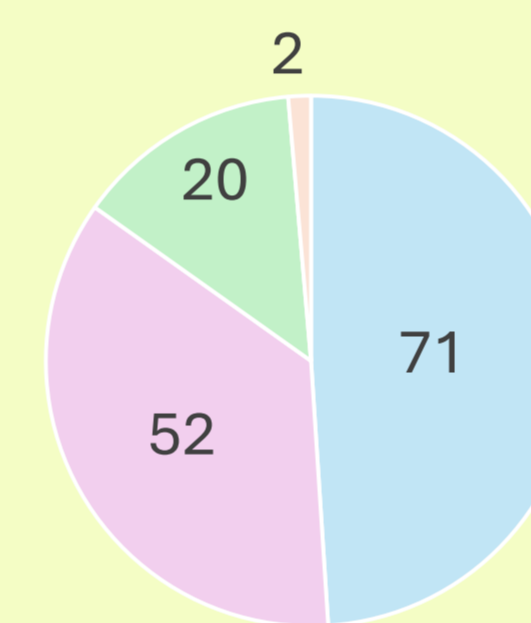
Results

A total of 163 participants accessed the survey, including international interest. 18 were removed as they did not meet the inclusion criteria. 145 participant responses were included for data analysis from a wide range of clinical areas, across all regions of the UK.

87.5 % reported challenges in relation to patient’s mobility, functional independence and rehabilitation when using pressure redistribution mattresses

- Physiotherapist
- Nurse
- Occupational Therapist
- Moving and Handling practitioner

Clinical professions participating in survey



Likert Scale results for impact mattresses have upon bed mobility

Statement: ‘Patients bed mobility ... is reduced with the following type of mattress’					
Bed Mobility	Mattress Type				
	Foam	Alternating Air	Low Air Loss	Hybrid	Overlays
Within bed	3	1	2	2	2
Lie – Sit	3	1	2	2	2
Sit – Stand	3	2	2	2	2
Stand – Sit	3	2	2	2	2
Sit - Lie	3	2	2	2	2

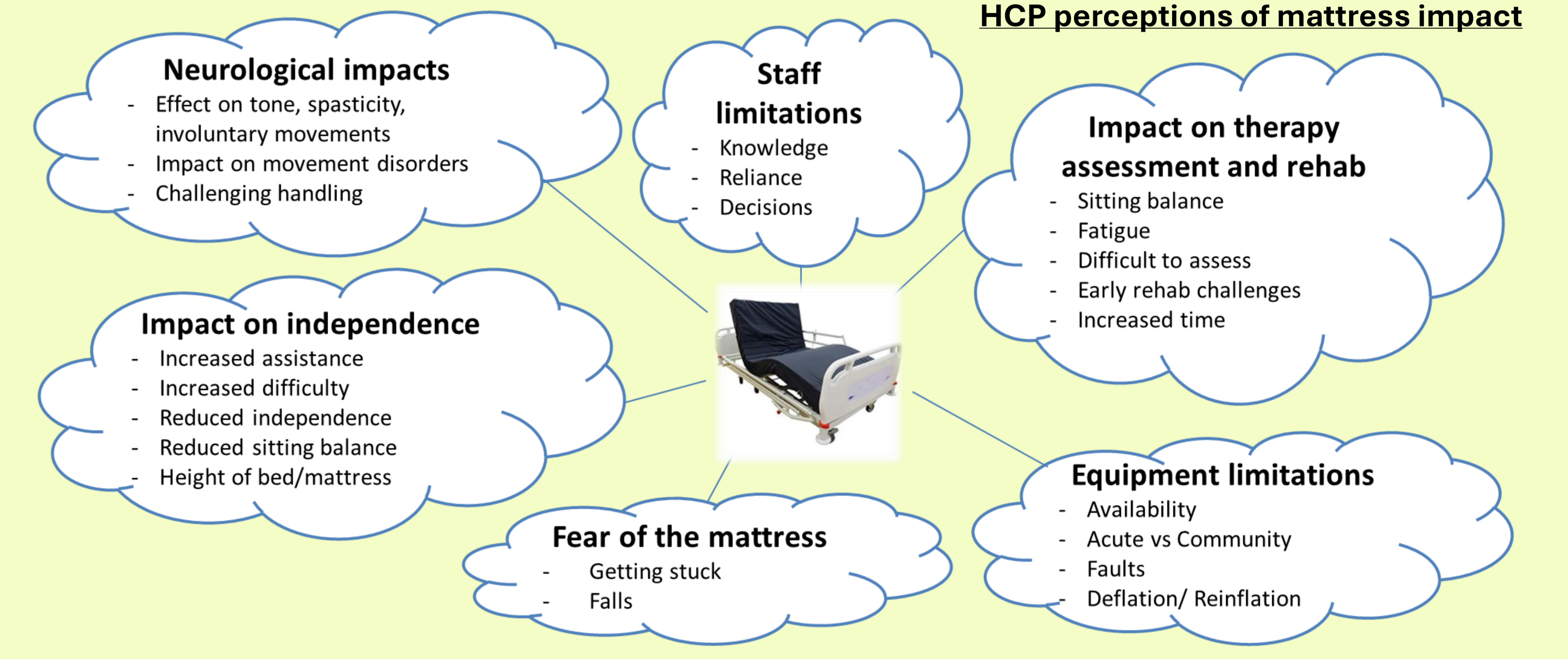
Most common mattress types were alternating air (119) and foam (114)

Median Scores

- 1 = Strongly agree
- 2 = Somewhat agree
- 3 = Somewhat disagree
- 4 = Strongly disagree

- 4 = Least challenges
- 1 = Most challenges

References
European Pressure Ulcer Advisory Panel; National Pressure Injury Advisory Panel; Pan Pacific Pressure Injury Alliance. (2019). *Prevention and Treatment of Pressure Ulcers/Injuries: Quick Reference Guide*. <https://www.internationalguideline.com/guideline>.
Gorecki, C., Brown, J. M., Nelson, E. A., Briggs, M., Schoonhoven, L., Dealey, C., Delfloor, T., & Nixon, J. (2009). Impact of Pressure Ulcers on Quality of Life in Older Patients: A Systematic Review. *Journal of the American Geriatrics Society*, 57(9), 1175-1183. <https://doi.org/10.1111/j.1532-5415.2009.02307.x>
Gorecki, C., Nixon, J., Madill, A., Firth, J., & Brown, J. M. (2012). What influences the impact of pressure ulcers on health-related quality of life? A qualitative patient-focused exploration of contributory factors. *Journal of Tissue Viability*, 21(1), 3-12. <https://doi.org/10.1016/j.jtv.2011.11.001>
Guest, J. F., Fuller, G.W. & Vowden, P. (2020). Cohort study evaluating the burden of wounds to the UK’s National Health Service in 2017/2018: update from 2012/2013. *BMJ Open*, 10 (e045253). <https://doi.org/10.1136/bmjopen-2020-045253>
Johansson, C. & Chinworth, S. A. (2018). *Mobility in Context: Principles of Patient Care Skills* (2nd ed). F.A. DAVIS
National Institute for Health and Care Excellence. (2014). *Pressure ulcers: prevention and management* [NICE Guideline No. 179]. <https://www.nice.org.uk/guidance/CG179>
National Pressure Injury Advisory Panel. (2020). *Stage 1 Edema* [Infographic]. NPIAP.com. <https://npiap.com/store/viewProduct.aspx?i=14357772>
National Wound Care Strategy Programme. (2023). *Pressure Ulcer Recommendations and Clinical Pathway*. <https://www.nationalwoundcarestrategy.net/wp-content/uploads/2023/11/NWCS-PU-Clinical-Recommendations-and-pathway-final-24.10.23.pdf>
NHS Improvement. (2018). *Pressure ulcers: revised definition and measurement summary and recommendations*. [CG 73/18]. <https://www.england.nhs.uk/wp-content/uploads/2021/09/NSTPP-summary-recommendations.pdf>
Nixon, J., Smith, J. L., Brown, S., McGinnis, E., Vargas-Placios, A., Nelson, E. A., Coleman, S., Collier, H., Fernandez, C., Gilberts, R., Henderson, V., Muir, D., Stubbs, N., Walker, K., Wilson, L., & Hulme, C. (2019). Pressure Relieving Support Surfaces for Pressure Ulcer Prevention (PRESSURE 2): Clinical and Health Economic Results of a Randomised Controlled Trial. *EClinicalMedicine*, 14, 42-52. <https://doi.org/10.1016/j.eclinm.2019.07.018>
Winicare Group. (2022). *Sam Mobility Aid System* [Photograph]. Winicare Group. https://www.wincare.uk/fiche-produits-care_beds_sam_mobility_aid_system-1-540-en.htm



Conclusion

- HCP’s perceived pressure redistribution mattresses to have a detrimental impact on bed mobility and functional independence.
- Most common challenges when using alternating air mattresses.
- Role of AHP within pressure management is under reported, yet they are vital to ensure mobility and independence, key factors in quality of life and pressure care.
- Study encompassed a multi-disciplinary (MDT) approach to review HCP’s perspectives of pressure mattresses – included Nurses + AHP’s.
- The ability for someone to reposition themselves and get into and out of bed independently = reduced risk of PU’s and the need for staff to facilitate pressure relief or complete activities of daily living.
- If the pressure mattress is causing reduction in bed mobility and independence – we have potential to change this by changing the mattress type or altering the settings.
- Wider MDT knowledge of pressure management and mattresses needed for this – to include MDT in clinical decisions around mattress choice.

What next ...?

- 1st phase of PhD project – linking with phase 2 + 3
- Used to facilitate interviews with HCP’s and patients who use pressure redistribution mattresses.
- Overall aim is to encourage an MDT approach and education to pressure management and choice of mattress, with mattress types being reviewed throughout the patient's journey.

Ask yourself...

Does bed mobility OR skin integrity have a higher weight in relation to an individual’s health and wellbeing than the other?

