# Posture & Pressure Management: Social Psychological Explanations for Compliance with Use of Clinically Prescribed Seating Functions

**Dan Bowers 1, Rachel Taylor 1, Kate Morgan 2 & Leigh Abbott 1**

1 University of South Wales

2 South Wales Posture & Mobility Service

Background/Introduction to the Project – Personal Perspectives

**Kate:** “My original interests within this field of research stemmed from repeated anecdotal evidence being highlighted by the clinical team of the South Wales Posture and Mobility Service (SWPMS). Discussions within CPD sessions, in-service training and general peer review, all drew my attention to the fact that service users were repeatedly not engaging in the use of additional seating features in their wheelchairs specifically prescribed to align postures, prevent contractures and reduce the risk of pressure ulcers. As clinical evidence has grown over the last two decades, so has the provision of these seating features (namely tilt-in-space, recline, elevating leg rests), and so it was interesting to discover that while the equipment being issued by the SWPMS is at its highest level of clinical effectiveness, why were we seeing this lack of compliance with these clinical prescriptions? A previous session at PMG Conference (Walker, 2014) had caused me to consider the psychological aspects of our service users’ behaviour, and subsequently led me to seek support from the psychology department in the University of South Wales (USW).

I felt it was essential to understand the reasoning around these service users’ behaviours for two reasons:

1. The costs of non-engagement with these features hits the NHS in two ways – the initial outlay for the equipment in the first place (costs range from approximately £200 - £1000 per wheelchair) and then the subsequent costs of intervention for service users addressing problems caused by poorly aligned postures or pressure ulcers.
2. The clinical outcomes being recorded following our interventions within the SWPMS were not demonstrating an effectiveness through achieving goals identified by both the service users and the clinicians, all leading to a general dissatisfaction with the service and equipment provided.”

**Dan & Rachel:** “We were both interested in the way that social psychology could be applied to address real-world issues.  We had previously worked on projects looking at the groups people joined and how these choices affected the way they behaved.  We had also worked on projects looking at how behaviour changed depending on the perspectives of different users.  Following initial discussions, it became clear that the issues that clinicians were facing, could be both better understood, and potentially improved in the future, through the lens of social psychology.   This is because social psychology places the person in context and examines how other people’s influences, the individual’s motivation and their previous experience or history can drive their current choices.”

Background/Introduction to the Project – Research Perspectives

The next step involved a review of previous literature and research surrounding this subject, to find out if SWPMS was a service alone in experiencing these trends. It was found that several previous studies were reiterating the clinical experience of the therapists within the SWPMS. Both Lacoste et al’s (2003) and Ding et al’s (2008) studies indicate that a large proportion of wheelchair users do not fully engage with their mobility equipment, with their utilisation of these powered functions existing below the recommended guidelines. While this was both enlightening and reassuring to note, further reviewing of the research to date, found that there has been little evidence obtained to understand these wheelchair users’ non-compliance with these features. Whether the information was focusing on the use of these features for pressure relief or engagement within occupations, all key studies advocated and recommend further research to establish why this was happening (Sonenblum et al 2009, Schofield et al 2013).

When it came to the literature on social psychology, a very well established approach to work on health behavior was the “Health Belief model” (HBM e.g. Rosenstock, 1966, 1974).  Some changes and developments have happened since Rosenstock developed this 50 years ago (see Sheeran, Klein & Rothman, 2017 for a recent review).  However the HBM is established as a strong approach for understanding why people will engage in behaviours that promote good/prevent poor health (e.g. weight management McArthur, Riggs, Uribe & Spaulding, 2016, & screening for breast cancer e.g. Champion, 1999).  According to this model, several things drive this; a person’s attitudes towards the behaviour, their perceptions of the risks and benefits and their perceptions of the barriers and facilitating factors.  As the prescribed behaviours were both promotion of benefits (e.g. using tilt in space to improve posture alignment) and prevention of risks (e.g. using tilt in space to decrease the likelihood of pressure sores), this was a useful starting point.

Methodology

Ethical approval was obtained from the Ethics Committee of the Faculty of Life Sciences & Education at the University of South Wales. We employed a qualitative design for this project with semi-structured interviews being conducted with users of powered wheelchairs. A total of 18 (7 male, 11 female; mean age = 51.72) participants were recruited via social media, support groups & sports teams and were interviewed face to face, by telephone or Skype depending on the participant’s preference and their geographical proximity to the research team.

Interview questions were generated based on the aims and objectives of the research as well as on prior research on social psychological features associated with health and well-being. This yielded five overarching topics; general demographic and background information, knowledge of features and how to use them, perceived barriers and facilitating factors, motivation to use features and perceptions of social support. These questions were used as broad themes to help generate a conversation with participants and while presented in a loose order, participants had the flexibility to answer questions about these themes in any order, to decline to discuss an aspect or to add other information they felt was relevant or useful.

Audio files were transcribed and were then subject to two forms of analysis. First, a systematic extraction of key features was conducted which including coding for features of wheelchair prescribed, whether each feature was used or not, brief reasons for why the user was complying/not complying with the prescribed features and other relevant comments. Following this a thematic analysis using a procedure set out by Braun & Clarke (2006) explored the data for common themes amongst participants.

Results

According to our results, users had been prescribed very different features for their chairs and some had experienced changes to their chair features since first prescription.  Three users had no specialist features currently prescribed; although one was due to have some installed on their forthcoming chair.  Of the remaining participants, users had between one and four specialist features, with tilt in space and recline features being the most common.

Findings from the systematic extraction demonstrated that only 36% of users identified the key clinical reason for features on their chair. Within that group, only 8% of features were being used for the correct clinical reason. Furthermore, 32% of the total number of prescribed features were not used at all.

These results demonstrate that users were not engaging fully with their features; on analysing the interviews we identified several potential reasons for this.   Our user group reported they would not use a feature if they were not clear about what the feature was for, or what the medical/clinical benefits were.  For example users reported that if a feature was physically difficult to operate, made them uncomfortable when using or interfered with some other function or activity (e.g. a headrest getting in the way when driving), they would simply not use or “work around” the feature.  They felt this was appropriate because the clinical need was not clear and because the feature was not functioning for them.  Some of our users even claimed they did not remember being told about the need for the features:

***“A:*** *And um uh so that was. And she did that, I mean. I don’t know, I can’t honestly remember whether she asked whether I needed, um, you know, the reclining and everything like that.*

***Int:*** *Right okay*

***A:*** *Because I’m not using the seatbelt, obviously it would be easier if I used a seatbelt, but it’s… The trouble with a seatbelt is, if you haven’t got it on, it dangles down the sides.*

***Int:*** *Oh*

***A:*** *So you have to shorten it and tuck it away in the back. It doesn’t make it easy to put on and off easily.”*

For users who did use some or all of their features, they reported this was because they found a feature “worked for them” or reduced the impact of a direct physical symptom.  For example, users would operate a tilt in space or recline feature to make them feel more comfortable or to watch TV rather than to reduce pressure, correct posture or reduce the possibility of long term pain.  This surprised us because features are prescribed for clinical reasons and part of the assessment, fitting and monitoring process is based on clinical rather than functional benefits.   However as the quote below shows, even those who remember having technical briefings were still unsure about the medical benefits:

*“****M****: I understand them.  I definitely in all the technical kind of ways so how they fully work and what they are supposed to do...but maybe there’s like a medical side to it that I don’t fully understand for example the tilt in function is so I can sit in the same position all day and maybe there is some medical side to use on it that I don’t know about.”*

Therefore based on our results at least, there are some problems with users understanding the importance of using their chairs correctly which might explain the variability in use.  This has led us to make some suggestions for practitioners to consider and these are reported in the next section.

Summary & Recommendations

The purpose of this study was to address a clinical issue and to answer a call in recent literature (see Schofield et al., 2013) to explore further the reasons underpinning wheelchair users’ lack of concordance with recommendations for the usage of extra functions on their wheelchairs. This lack of engagement has a potential negative impact both on the user (e.g. deterioration of original condition, or the acquisition of new conditions) and on the service provider (e.g. initial cost of prescribing extra features, treating needlessly deteriorating/ newly acquired conditions). As such, it was important to understand the factors underpinning this behaviour as well as recommending potential interventions to improve these factors.

The main message from our findings is that a large proportion of the participants simply did not understand the clinical need for and benefits of these features and as such, tended not to engage with them effectively. Results suggest there are a number of practical factors underpinning this lack of understanding that appeared to stem from their interactions with their clinicians (e.g. a lack of involvement in the process of making decisions about features, the information being conveyed during the fitting of wheelchairs, lack of reinforcement of the benefits of proper usage over time).

As well as the practical issues there also appear to be significant psychological factors. For example, many of the participants in this study only ever discussed using their wheelchair’s features in terms of functional use (e.g. attending concerts, watching television) as opposed to their clinical use. Each of the factors listed above presents an opportunity for improving the processes surrounding the prescription, fitting and advice provided regarding wheelchairs. As such, we present a list of recommendations for practice and future research in the section below.

**Recommendations for Practitioners**

1. *Refocus users’ perceptions: Clinical Benefit vs. Functional Use*

Based on the findings of the current research, it is clear that there may be a gap between the practice of conveying clinical benefits and the participants’ understanding; this being due to a focus on functionality by users.  One potential strategy to bridge this gap would be to give greater emphasis to what a user might consider salient; namely the functional benefits of a piece of equipment.  For example a tilt in space feature might well be prescribed to address postural issues and prevent further deterioration of the user’s spine (a clinical benefit) but be perceived by the user as being helpful for watching television more easily or toileting (a functional benefit).  More explicit linkage between clinical and functional benefits when features are discussed, prescribed and demonstrated as well as an emphasis on how clinically correct usage could have functional benefits might help to sell the same message in a more user-appropriate manner.

1. *Putting “occupation” back into occupational therapy*

Current practice amongst healthcare professionals working within the field of posture and mobility appears to vary, but in general, the approach is to verbally explain and subsequently demonstrate the way that features may be used, as well as explaining their clinical benefit. However, the current findings suggest that this approach can lead to a lack of understanding on the user's behalf and in turn, lead to a lack of engagement with these features.  This is of interest when considering the role and core skills of occupational therapists specifically.  The consensus approach to intervention within posture and mobility services is one of compensative, problem-solving equipment provision, which does not ordinarily encompass the use of occupation as a means of engaging individuals in their intervention.  With the results of this study highlighting that the use of powered wheelchair features is predominantly utilised with functional activities, there is clearly a gap between professional skills and subsequent professional behaviour.  Therefore, further research should investigate the clinical practice of occupational therapists and/or other healthcare professionals, the rationale for this practice and the specific impact of it.

**Recommendations for Researchers**

1. *Alternative methods for conveying and reinforcing key information to users*

Future research should investigate the impact of alternative methods of conveying and reinforcing information regarding the correct ways to use these functions, as well as their clinical benefits. Showing and telling, as is the current convention may not be the most effective strategy. It may also be the case that a "one size fits all" approach is suboptimal. For example, previous research has demonstrated that when teaching younger vs. older adults to engage with new technologies, different teaching approaches yield different outcomes for each population (e.g. Hickman, Rogers and Fisk, 2007). An older adult might struggle to take in information due to deficiencies in working memory and as such would need a different approach than a younger participant (see also Jin et al., 2008 for a review). As such, it is important to consider the strategies that are appropriate and specific to the individual.

1. *Embracing technology – nudging, reinforcement, recording*

A further area that should be investigated in future research is the potential impact of new technology. For example, one possibility for reinforcing positive behaviours could be the inclusion of tailored feedback that is temporally proximate to the behaviour displayed.  This would allow a user to obtain information about the utility of his/her behaviour, messages about positive benefits of continued engagement and suggestions for behavioural tweaks that might improve future clinical/functional experience.  If these were delivered as close to the behaviour as possible, this would enable the user to form associations between the behaviour and the outcome that would serve as a valuable message for continued engagement.  Technological advances allowing the recording and relay of data about usage and immediate response about efficacy provide a mechanism by which this could be achieved and future research should investigate these possibilities.

**References**

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. <http://dx.doi.org/10.1191/1478088706qp063oa>

Champion V.L. (1999) Revised susceptibility, benefits and barriers scale for mammography screening. *Research in Nursing & Health* 22, 341–348.

Ding, D., Leister, E., Cooper, R.A., Cooper, R., Kelleher, A., Fitzgerald, S.G. & Boninger, M.L. (2008) Usage of tilt-in-space, recline, and elevation seating functions in natural environment of wheelchair users. *Journal of Rehabilitation Research and Development, 45,* 973 – 984. DOI: 10.1682/JRRD.2007.11.0178

Hickman, J. M., Rogers, W. A., & Fisk, A. D. (2007) Training Older Adults to Use New Technology. *The Journals of Gerontology series b, Psychological Sciences and the Social Sciences. 62, 77-84.* <https://doi.org/10.1093/geronb/62.special_issue_1.77>

Jin, J., Sklar, G. E., Min Sen Oh, V., & Chuen Li, S. (2008). Factors affecting therapeutic compliance: A review from the patient’s perspective. *Therapeutics and Clinical Risk Management*, *4*(1), 269–286.

Lacoste M, Weiss-Lambrou R, Allard M, Dansereau J (2003). Powered Tilt/Recline Systems: Why and How Are They Used? *Assistive Technology. 15 (1),* 58-68. http://www.tandfonline.com/doi/abs/10.1080/10400435.2003.10131890

McArthur, LH., Riggs, R.D.A., Uribe, F. & Spaulding T.J. (2018).  Health belief model offers opportunities for designing weight management interventions for college students.  *Journal of Nutrition Education & Behavior, 50 (5),* 485-493

Schofield, R., Porter-Armstrong, A & Stinson, M. (2013) Reviewing the Literature on the Effectiveness of Pressure Relieving Movements. *Nursing Research and Practice,* 1-13. http://dx.doi.org/10.1155/2013/124095

Sheeran, P., Klein, W. M. P., & Rothman, A. J. (2017). Health behavior change: Moving from observation to intervention. *Annual Review of Psychology, 68*, 573-600. <http://dx.doi.org/10.1146/annurev-psych-010416-044007>

Sonenblum S.E., Springle, S. & Maurer, C.L. (2009). Use of power tilt systems in everyday life. Disability and Rehabilitation: *Assistive Technology. 4 (1),* 24-30.

Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, *2*, 328–335

Walker, L. (2014) *Accepting Wheelchair Use*. Paper presented at Posture and Mobility Group National Training Event. July, 2014, Cardiff.