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O L L S C O I L L U I M N I G H

“Exploring the Application of the Wheelchair outcome measure
(WhOM) as an Outcome Measure for people with complex needs – A
Single Case Study”

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ABSTRACT

Outcome measurement is beneficial to Occupational Therapy practice by providing evidence on the effectiveness of intervention which is essential to develop services. The Wheelchair Outcome Measure (WhOM) is specific to seating provision and is described in the literature as a tool which measures individualised outcomes related to body function and active participation. The WhOM was identified by SeatTech as a measure that could be potentially used within their service and worthy of further investigation. A single case study was used for this research. The participant was selected from a convenience sample of individuals attending a SeatTech clinic. A qualitative semi-structured interview was carried out and the WhOM was piloted at three stages, before, on receipt and four weeks after receiving intervention. The interview was audio recorded and the findings were reported. The WhOM is useful for evaluating outcomes for a person with complex needs however, findings highlighted that some areas of evaluation proved limited depending on the assessment and delivery setting, for example, setting goals at home and in the community when the intervention was primarily located in clinical settings. The WhOM also failed to identify issues in relation to skin breakdown. The tool provides pre and post measurement and required adaptation to measure outcomes over time. Wheelchair and Seating Provision is a primary need for a person's survival and essential freedom. Evidence based practice is essential to evaluate and develop services. The WhOM goes some way to doing this however, further research and development of this tool would be beneficial.

INTRODUCTION

The provision of appropriate wheelchair and seating intervention is a basic human right for enhancing the mobility of individuals with complex needs (WHO 2008). It serves as an enabler both extrinsically and intrinsically for individuals having both short-term and permanent impairments of body function to participate in their everyday occupations and enhancing overall quality of life (Gowran 2012). Wheelchair provision is “*an overall term used for wheelchair design, production, supply and service delivery*” (WHO, 2008, p.11). It is a complex process and evidence based practice is necessary in order to continuously evaluate it’s effectiveness in addressing the individualised and changing needs of the service user. Once the wheelchair has been delivered to the user, it is wrong to think that the intervention is complete: the delivery of the system marks the beginning of the time of use, and therefore signals the beginning of the evaluation of system effectiveness’ (Cook & Hussey 1995, p. 182). Outcome measures are an important tool used by occupational therapists in the area of seating provision as they provide evidence on the overall effectiveness and efficiency of seating intervention which is crucial to evaluate and develop services (Mortenson et al 2007). The Wheelchair Outcome Measure (WhOM) is a wheelchair specific measurement tool that is described in the literature as being an individualised, goal-orientated measure that addresses active participation while also considering body structure and function (WhOM manual version 4, 2011; Auger et al 2010; Garden et al 2006). The WhOM was identified by SeatTech as an outcome measure that could potentially be used within their service and required further investigation. The aim of this case study is to identify if the WhOM is an effective outcome measure for evaluating the needs of individuals with complex needs over time. The case study forms part of a larger pilot study that is currently being carried out by the University of Limerick and SeatTech Enable Ireland.

LITERATURE REVIEW

The provision of appropriate wheelchair and seating intervention is a basic human right for enhancing the mobility of individuals with complex seating needs (Gowran 2012; WHO 2008). A person may require seating or wheelchair intervention at any stage in their life in order to avail of equal opportunities with regard to inclusion and active participation (WHO 2008). An appropriate seating intervention can enable individuals to fulfil social employment and interpersonal roles and increase independence, therefore enhancing quality of life, participation in society, and overall satisfaction (Pierce 2006; WHO 2008; Reid et al 2002; Fuhrer et al 1992). It can enhance the physical health of the user by improving body function, reducing vulnerability to pressure sores and skeletal deformities (Wright et al 2010; Pluym et al 1997; Ferguson-Pell 1995). It can improve comfort, provide pressure relief and reduce pain, therefore enabling participation in a safe, comfortable and functional manner (Townsend and Polatajko 2007; Reid et al 2002). The International Classification of functioning, disability and Health (ICF) integrates the social and medical models of practice as it considers both social aspects of participation as well as condition, body structure and functioning while also taking the person's environment into account (WHO 2001). This classification is useful for guiding practitioners when prescribing seating intervention for individuals with complex seating needs.

Outcome measures are an important tool used by occupational therapists in the area of seating provision as they provide evidence on the overall effectiveness of the intervention from the user's perspective (Mortenson et al 2007). They can be used to determine the individuals overall level of satisfaction with the product and to determine whether their goals are being achieved (Demers et al 2000). An appropriate outcome measure should use a client-centred approach, whereby the goals are set by the client in collaboration with the therapist, and these goals are measured over time to ensure that the intervention is addressing their needs (Wright et al 2010; McColl et al 2000; Carpenter et al 2001). Ideally, outcome measurement should be carried out in the environment where the individual will be using the intervention in order to obtain a true reflection of their experiences (Harris et al 2005). Many outcome measures do not take the participation aspirations of the client into account, and whether or not the intervention has enabled them to participate in valuable activities (Auger et al 2008).

This study focuses on the WhOM which was identified by SeatTech as an outcome measure that is specific to seating provision and could potentially be used within their service. The WhOM is described in the literature as being an individualised, goal-orientated outcome measure that uses a client-centred approach (WhOM manual version 4, 2011; Auger et al 2010; Garden et al 2006). It takes into consideration the ICF classification as it measures outcomes at a participation level while also considering body function (WhOM manual version 4; 2011; Mortensen 2007). It is administered by measuring the impact that intervention has on self-selected participation goals, and the importance and satisfaction levels that the client has during participation (Auger et al 2010; Garden et al 2006; WhOM manual version 4, 2011). This approach is different to many other outcome measures that commonly reflect the concerns of the clinician in relation to body function and activity rather than those of the client (Mortenson et al 2007; Kramer 1992).

The WhOM consists of a two part questionnaire that can be administered by a therapist in less than 30 minutes (WhOM manual version 4; 2011). Therefore it is quicker to administer in comparison to other outcome measures such as the COPM and the Goal Attainment Scale (GAS) (Mortenson et al 2008; Cusick et al 2006). Part two of the WhOM includes questions about body function so therefore the WhOM addresses body function as well as active participation (Mortenson et al 2008; WhOM manual version 4). The WhOM has a simple scoring system which makes it easy for therapists to use (Mortenson et al 2008). However, there is little evidence to date to suggest its validity and reliability as a measurement tool when addressing the needs of people with complex seating needs. The current literature provides little evidence on the validity and reliability of the WhOM for addressing body function. Another limitation that has been identified is its sensitivity to changes in the environment (Mortenson et al 2007; Garden et al 2006; WhOM manual version 4). It is recommended that the WhOM should be administered in the environment where the wheelchair is being used however, this may not always be possible.

The aim of this study is to identify if the WhOM is an effective outcome measure for evaluating the individual needs of people with complex needs over time. The study also evaluates the effectiveness of part two of the WhOM when addressing issues in relation to body function.

METHODOLOGY

Study Design:

This research study uses a qualitative approach based on a single case study design. Yin describes a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used”. (Yin 1984, p. 23). This study investigates the real life experiences of an individual with complex seating needs. Case studies are perceived as being holistic and having a client-centred approach (Yin 1994). Therefore, the researcher felt that a case study would be an appropriate approach for this study. The participant was selected from a convenience sample of individuals attending a SeatTech service. The participant has a condition of spina bifida which is a developmental congenital disorder caused by the incomplete closing of the embryonic neural tube, and as a result some of the vertebrae overlying the spinal cord are not formed and remain unfused and open in the lumbar spine (Creapeau et al 2003). As a result, the participant commonly develops pressure sores in her lumbar region and has no sensation in this area. The purpose of the research was clearly explained to the participant, and she had the right to choose if she wished to participate in the study. Ethical approval was obtained through Enable Ireland and written consent was given voluntarily by the participant. The privacy and confidentiality of the participant was respected at all times and a pseudonym is used to protect her identity.

Data collection:

The researcher met with the participant at three different stages in order to evaluate the effectiveness of the WhOM for measuring outcomes over time:

• <i>Stage one:</i> one week prior to receiving the new wheelchair intervention.
• <i>Stage two:</i> On the day that the wheelchair was issued.
• <i>Stage three:</i> Four weeks after receiving the wheelchair.

An initial interview was carried out by the researcher during stage one. Consent was obtained from the participant to record the interview using an audio device. The recording was saved on a password protected computer and destroyed after it had been transcribed. The WhOM was administered at each stage in order to determine its effectiveness for evaluating the needs of the participant. Field notes were taken at each stage.

Stage 1: Initial Interview, Goal Setting and Administering the WhOM:

A semi-structured interview was administered by the researcher; its purpose being to gain an insight into the participant's narrative, to identify meaningful occupations and to identify participation barriers (see Appendix D). This interview took place at a time and location that was convenient for the participant. A semi-structured interview was chosen as it has been proven to be an adaptable instrument for getting into a particular field and becoming familiar with the topic being researched, and it has also proven to be a flexible method of data collection (Yin 1994). The questions were derived from the Occupational Performance History Interview (OPHI-II) adapted from the Model of Human Occupation (MOHO), an occupation focused model (Kielhofner et al 2002; Kielhofner 1998). This model aims to understand human behaviour by seeking how occupation is motivated, patterned and performed, within three interrelated components of volition, habituation and performance capacity (Kielhofner 2002). After the initial interview was carried out, a number of client-centred participation goals were established by the participant. These goals were set within her home and in her community in accordance with the requirements of the WhOM (WhOM manual version 4). The WhOM was then administered by the researcher and the results were scored (see WhOM scoring guidelines below). The entire process took ninety minutes.

Stage 2: Re-Administration of the WhOM:

Stage two took place within the SeatTech clinic when the participant was being issued with her new wheelchair. A senior occupational therapist and a clinical engineer were also present during this process. During this stage, the participant carried out a transfer from the new wheelchair using a transfer board with the assistance of the occupational therapist. This was one of her participation goals that was set at stage one. She scored this transfer when the WhOM was administered by the researcher. It is possible that the participant may have scored the transfer at a level that she felt was expected of her by the researcher and the practitioners. The Hawthorne effect is a term used to cover many phenomena that can effect a study whereby the participant adapts a behaviour change due to an awareness that they are being observed, and complies with the supposed wishes of the researcher as a result of special attention received or a positive response to the intervention being provided (Wickstrom and Bendix 2000). This may have been the case when the participant scored the transfer. The WhOM was administered and scored by the researcher in fifteen minutes during stage two.

Stage 3: Second Re-Administration of the WhOM

Stage three took place at a location that was convenient for the participant four weeks after she had been issued with her wheelchair. The researcher and the participant were the only individuals present during this stage. The WhOM was re-administered by the researcher. This is outside the remit of the WhOM as it only allows one option for re-administration in order to give a pre and post score (WhOM manual version 4). However, the researcher felt that it was important to re-administer the WhOM in order to get an accurate reflection of the participants experience of using the wheelchair at home and in the community. The WhOM was then scored by the researcher in fifteen minutes.

Scoring of the WhOM:

The WhOM consists of a two part questionnaire. Part one of the questionnaire is a semi-structured interview and Part two consists of structured questions. In Part one, participation goals are identified by the individual, both in the home or in the community. The individual rates the importance and their satisfaction levels with participation for these goals on an 11-point scale from 0 to 10 (0 being not important at all and 10 being extremely important). The structured questions in part 2 of the questionnaire are in relation to comfort, skin breakdown and satisfaction with body positioning. The individual answers three questions and these results are recorded on the scoring sheet (See Appendix A).

RESULTS

Stage 1: Initial Interview, Goal Setting and Administering the WhOM:

Having carried out the initial interview with the participant, the themes that emerged were barriers to participation and body function issues. These are described in detail below. A summary of the participant's narrative is also provided.

The participant's narrative:

Siobhan (pseudonym) is an independent 20 year old motorised wheelchair user having a condition of spina bifida. Siobhan can carry out all washing and grooming tasks independently, however she requires the assistance of one person and a transfer board for transfers. She travels to a vocational centre three days per week using her motorised wheelchair. She also volunteers in a hospital two days per week. Siobhan stated that this role can be challenging at times but she really enjoys it. She stated *"I am making a difference to someone's life"*. Siobhan enjoys looking after other people, *"I've been in hospital so long it has rubbed off on me"*. Siobhan's hobbies include walking her dog, shopping, and socialising with friends.

Barriers to Participation:

Siobhan feels that one of the barriers effecting her participation is that her wheelchair is beginning to slow down. She has been using her current motorised wheelchair for the past eight years. The wheelchair has now *"slowed down"* and is *"not working as well as it used to"*. Siobhan now finds it more difficult to use her wheelchair on outdoor sloped terrain. She stated *"if I hit a slope too quick, the back wheels can't handle it"*. This has left Siobhan nervous when crossing roads.

Body Function issues:

Siobhan has a pressure sore on her lumber region for the past ten years as a result of her condition. The pressure sore is currently closed over. However, the area is sensitive and she needs to be cautious. Siobhan has no sensation in her lumbar region so therefore she requires assistance to inspect the pressure sore. Siobhan has been hospitalised in the past as a result of the pressure sore.

Goal-Setting Process:

A number of client-centred individualised participation goals were set by Siobhan in collaboration with the researcher during stage one. The initial interview allowed Siobhan and the researcher to build a therapeutic relationship which was beneficial for the goal setting process. The goals were set in the home and community in accordance with the requirements of Part one of the WhOM (WhOM manual version 4, 2011).

Goals in the Home

1. Watching television
2. Making a cup of tea independently
3. Going to her bedroom to listen to music or use her lap-top
4. Using her bathroom for getting ready for social events
5. Transfers using a transfer board with the assistance of one person

Goals in the Community

1. Walking her dog
2. Travelling to Enable Ireland
3. Going shopping
4. Going to the cinema
5. Volunteering in a nursing home

Administration of the WhOM

The WhOM was administered by the researcher after the goals had been identified. During part one of the WhOM, Siobhan rated the importance and her current satisfaction levels with the goals using her current wheelchair in accordance to the WhOM scoring guidelines (WhOM manual version 4). Refer to tables one and two below for results. Siobhan also scored the three structured questions in Part two of the WhOM in relation to body function issues. Refer to table three below for results.

Stage 2: Re-Administration of the WhOM:

The WhOM was re-administered at SeatTech one week later when Siobhan was issued with her new wheelchair. A senior occupational therapist and a clinical engineer were present at this time. The researcher observed Siobhan being issued with her new wheelchair. The WhOM was then re-administered. It was not possible to complete the re-scoring of Part one of the WhOM as Siobhan had not yet used the wheelchair in her home or community and therefore she could not score the goals. As previously discussed, Siobhan carried out a transfer from the new wheelchair to a plinth at the

SeatTech clinic with the assistance of the occupational therapist and she used a transfer board. Siobhan then scored this transfer. However, it was felt that this was not an accurate score as it was carried out in the seating clinic and not in her home environment. It is also possible that Siobhan may have scored the transfer at a level that she felt was expected of her by the researcher and the practitioners. The results are outlined in tables one and two below. Part two of the WhOM was also re-scored and the results are outlined in table three below.

Stage 3: Second Re-Administration of the WhOM:

The researcher met with Siobhan four weeks after she received her new wheelchair. The researcher and Siobhan were the only individuals present. The WhOM was re-administered for the second time. This is outside the remit of the WhOM as it only allows one option for re-administration in order to give a pre and post score. The WhOM was adapted by the researcher in order to score it at stage three. The results are outlined in tables one and two below. Part two of the WhOM was also re-scored. Results in table three.

STAGE 1				STAGE 2		STAGE 3	
Participation Goals (Home)	Importance	Satisfaction 1	Importance X Satisfaction1	Satisfaction 2	Importance X Satisfaction2	Satisfaction 3	Importance X Satisfaction3
Watching television	7	10	70	Unsure	Not possible to score	10	70
Making tea	10	10	100	Unsure	Not possible to score	7	70
Going to her bedroom to listen to music/use her laptop	7	10	70	Unsure	Not possible to score	10	70
Using her bathroom for grooming purposes	10	10	100	Unsure	Not possible to score	10	100
Transfers using a transfer board with assistance of one person	10	6	60	6	60	5	50
Total Score 1 = 400				Not possible to score total		Total Score 3 = 360	

**Note: Not possible to achieve overall score as the participant could not score the Goals at stage two.*

Table one: Part one of the WhOM: Participation (Home)

STAGE 1				STAGE 2		STAGE 3	
Participation Goals (Community)	Importance	Satisfaction 1	Importance X Satisfaction1	Satisfaction 2	Importance X Satisfaction2	Satisfaction 3	Importance X Satisfaction3
Walking her dog	10	7	70	Unsure	Not possible to score	10	100
Travelling to vocational centre	10	5	50	Unsure	Not possible to score	10	100
Going shopping	10	10	100	Unsure	Not possible to score	10	100
Going to the cinema	6	6	36	Unsure	Not possible to score	6	36
Volunteering in hospital	10	10	100	Unsure	Not possible to score	10	100
Total Score 1 = 356				Not possible to score		Total Score 3 = 436	

**Note: Not possible to achieve overall score as participant could not score the Goals at stage two.*

Table two: Part one of the WhOM: Participation (Community)

Questions	STAGE 1	STAGE 2	STAGE 3
1. How would you rate your comfort while sitting in your wheelchair? (0-10) 0 =not at all comfortable 10 =Extremely comfortable	4	8	10
2. How satisfied are you with the way your body is positioned in your wheelchair? (0-10) 0 =not at all satisfied 10 =Extremely satisfied	7	10	10
3. Over the past month have you had any episodes of skin breakdown on your bottom?	No	No	No
3a. If yes, in your opinion, how severe has your skin breakdown been? (0-10) 0 =Extremely severe 10 =Not at all severe	Not applicable	Not applicable	Not applicable

. Table three: Part two of the WhOM: Body Function

Summary of Results/Findings:

The WhOM was a useful tool for setting individualised goals using a client-centred approach. The WhOM was quick to use and only took fifteen minutes to administer and score after the goals had been set. The scoring system was simple and easy to use. However, some limitations were identified by the case study. These are presented under the following three themes: sensitivity to environmental change, inability to measure outcomes over time and limitations when addressing skin breakdown.

Sensitivity to Environmental Change

The WhOM was found to be sensitive to environmental changes, for example, setting participation goals for home and community when the wheelchair intervention was issued at the SeatTech clinic. It was not possible for the goals to be re-scored at stage two as Siobhan did not yet have the opportunity to use the wheelchair at home or in the community. During stage two, Siobhan carried out a transfer from her wheelchair to a plinth using a transfer board and with the assistance of the occupational therapist. She scored her satisfaction with this transfer as a six. During stage three, Siobhan re-scored her transfers as a five. Siobhan had now been using the wheelchair at home for four weeks and commented that *“it was hard to get out of the wheelchair during the transfer”*. This shows that administering the WhOM at the clinic did not provide a true reflection of Siobhan’s transfers in her home environment.

Inability to measure outcomes over time:

The WhOM only provides pre and post measurement and required adaptation to measure outcomes over time. Siobhan set one of her participation goals as making a cup of tea. She scored her satisfaction level as ten at stage one when using her existing wheelchair. When the WhOM was re-administered at stage three, she re-scored her satisfaction as five with the new wheelchair. She had now been using the wheelchair for four weeks and commented that it was more difficult to make a cup of tea as *“her arm hits off the back of the chair”*. This information may not have been identified if the WhOM had not been adapted and re-administered at stage three which highlights the importance of measuring outcomes over time.

Limitations when addressing skin breakdown:

Part two of the WhOM addresses body function issues in relation to comfort, body positioning and skin breakdown. As previously discussed, Siobhan commonly develops pressure sores in her lumbar region. This information was not detected by the WhOM as it only addresses skin breakdown on the individual's buttocks. Therefore the WhOM is not sensitive enough to identify skin breakdown in other regions of the body.

DISCUSSION

Benefits:

The benefits of the WhOM for evaluating the wheelchair and seating needs of individuals with complex needs has been highlighted in previous studies. These studies perceive the WhOM as being an individualised goal-orientated outcome measure that uses a client-centred approach (Auger et al 2010; Garden et al 2006). This research has contributed to this evidence by highlighting the benefits of using the WhOM for evaluating the needs of a client with complex needs. All of the goals that were set during this study were selected by the participant based on occupations that are meaningful to her in her everyday life. Therefore, the goals were individualised and based on what she actually wanted to achieve with her new wheelchair. This reflects the findings of a previous study around goal setting that suggests that the most effective method of determining client-centred goals is to ask the individual (Wright et al 2010). The study found that the WhOM was user friendly and could be administered within fifteen minutes which would be beneficial to clinical utility. The procedure for scoring was simple and could be quickly carried out by the researcher. This evidence concurs with the information provided in the WhOM manual and the previous studies that have been carried out on the outcome measure (Mortenson et al 2008; Garden et al 2006). The WhOM was also found to take into consideration the ICF classification (WHO 2001) as it measures both participation and it also addresses some issues in relation to body structure and function which is consistent to the information that is given in the WhOM manual (WhOM manual version 4, 2011). This study highlights that the WhOM is a useful outcome measurement tool, however, a number of limitations have been identified below:

Sensitivity to changes in the environment:

The developers of the WhOM have highlighted that the outcome measure is sensitive to changes in the environment (WhOM manual version 4, 2011). This was evident during this case study. The researcher administered the WhOM during stage two at the seating service when the participant received her new wheelchair. However, it was not possible for the participant to score her goals in relation to participation levels as she had not yet used the wheelchair at home or in the community. Also, on this occasion the participant

carried out a wheelchair-to-plinth transfer using a transfer board with the assistance of the occupational therapist. The participant scored the transfer as six. However, when the WhOM was administered four weeks later, the transfer was re-scored as five. The participant had now been using the wheelchair for four weeks and identified difficulties with the transfer using the wheelchair. Therefore, the previous score given at the SeatTech clinic was not an accurate reflection of her transfer experiences at home. Mortenson et al 2008 recommends that the WhOM should be administered in the environment where the individual will be using the seating intervention. However, in reality this may prove difficult as intervention for individuals with complex needs is primarily located in clinical settings. This highlights the importance of an evaluation period after the intervention has been received by the user which was also addressed in a study carried out by Cook & Hussey 1995.

Inability to measure outcomes over time:

Demers et al 2000 found that outcome measures are effective for establishing an individual's satisfaction with intervention and to establish whether their goals are being achieved. This suggests that outcomes should be continuously measured over time in order to determine whether the individual's goals and aspirations are being achieved, or if the intervention needs to be adapted in order to have a positive impact to their quality of life. Cook and Hussey 1995 also highlight the importance of continuously evaluating the effectiveness of wheelchair intervention after it has been received by the service user. According to Cook and Hussey 1995, this in fact marks the commencement of the evaluation process. The results of this research indicate that the WhOM is not effective for measuring outcome over time as it only provides a pre and post score. It was necessary for the researcher to adapt the WhOM in order to re-score the goals at stage two. As the needs of an individual with complex needs can change over time a suitable outcome measure should allow measurement over time. During this study, one of the participation goals was to make a cup of tea. This goal was scored as ten when the participant used her old wheelchair. When this goal was re-scored using the new wheelchair at stage two, the participant re-scored this goal as five. The participant had now been using her new wheelchair for four weeks and had experienced difficulties when making a cup of tea at home as a result of her arm hitting off the back to the wheelchair. This difficulty may not have been identified if the WhOM had not been adapted by the researcher. These findings indicate the importance of measuring outcome over time in order to ensure that the goals are being achieved.

Limitations when addressing skin breakdown:

Previous studies found that an effective outcome measure should take into consideration the ICF classification and therefore address issues in relation to body structure and function as well as measuring participation outcomes (Auger et al 2008; Mortenson et al 2007). The WhOM is perceived as being unique in the literature as it is highlighted as being one of the few available outcome measures that addresses both participation and body function (Mortenson et al 2008; WhOM manual version 4; Auger et al 2010; Garden et al 2006). However, there has been limited research carried out to date to determine the effectiveness of the WhOM when addressing issues around body function. This study has identified some limitations to the WhOM when addressing body function. As previously discussed, the participant commonly develops pressure sores in her lumbar region which significantly impacts on her occupational performance. Part two of the WhOM only addresses skin breakdown on an individual's buttocks and therefore failed to identify the pressure sore in the participant's lumbar region. An individual with complex seating needs may be prone to developing pressure sores in many body regions. Therefore the question in relation to skin breakdown should not only focus on one body region. The developer's of the WhOM have acknowledged that the tool only lightly touches on body structure and function outcomes (Mortenson et al 2008). However, it is vital to consider body structure and function when prescribing wheelchair and seating intervention's for users, therefore consideration should be taken into developing this outcome measure in order to capture their true experiences.

Limitations to the study and further research:

This single case study cannot be considered representative of all individuals with complex seating and wheelchair needs. However, it begins the process of evaluating the existing tools that are available to assess outcomes over time. This study raises some questions in relation to outcome measurement for individuals with complex wheelchair and seating needs and highlights the need for further studies in this area. There is a need to develop outcome measures in order to capture the true experiences of this population with regard to both participation and body function issues over time. There is also a need to carry out further research on the way that the seating and wheelchair intervention process is primarily carried out within a clinical setting and whether carrying out outcome measures within a seating service gives a true reflection of the individual's lived experience.

CONCLUSION

This case study has highlighted that the WhOM would be a useful addition to occupational therapy practice within the area of seating provision. It is client-centred, quick and easy to use and provides a good measure of goal attainment as it focuses on individualised goals that are important to the service user. Unlike many other outcome measures, the WhOM takes into consideration the ICF classification as it measures an individual's outcomes at a participation level while also considering body structure and function. However, as some limitations have been identified it should be used as part of the evaluation process and should not be seen as a replacement for the assessment and interview process that is currently in place in a seating service. For example, the study highlighted the importance of carrying out an initial interview with a service user as part of the initial assessment. If the initial interview had not been carried out, it may not have been possible to identify that the participant had a pressure sore in her lumbar region. The WhOM failed to recognise this as it only addresses skin breakdown to the buttocks even though a person with complex needs may develop a pressure sore in many body regions. The study also highlighted the importance of having a follow up period after the intervention has been implemented in order to ensure that it is addressing all of the user's needs. The WhOM was adapted for the purpose of this case study to measure outcome over time as it only provides a pre and post score. If the WhOM had not been administered at the third stage it may not have been identified that the intervention was not addressing the primary needs of the participant. This highlights the importance of a follow up period after the intervention has been implemented. The study also identified the importance of administering outcome measures in the environment where the user will be using the intervention in order to get a true reflection of the experiences of the user. Seating provision is a complex process and outcome measurement is essential in evaluating and developing services. The WhOM goes some way to doing this however, based on the findings further research on the use of this tool would be beneficial in order to evaluate the complexities within the process.

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Name / ID #: _____

THE WhOM

Part I: PARTICIPATION

Instructions for Administration:

Ask the client to identify activities they perform in their wheelchair that are important to them by asking the two questions outlined below. Have the client score the importance of these activities and then ask them to rate their current level of satisfaction in performing these activities. If the client has scored their satisfaction with an activity ≤ 7 , determine the underlying conditions (wheelchair/seating device or environmental barriers) that impair performance of this activity to assist with intervention planning.

1) *Some people use their wheelchairs because they want to participate in activities in or around their home, such as preparing meals, watching TV, or gardening. What activities in your home would you use your wheelchair to perform?*

Use this numerical scale to help fill in the table:
0 1 2 3 4 5 6 7 8 9 10

Initial assessment Date:			Reassessment Date:		
Participation goals:	Importance	Satisfaction 1	Importance x Satisfaction 1	Satisfaction 2	Importance x Satisfaction 2
Eg. Making a meal Watching favourite TV show	How important is this activity to you? (0 - 10) 0 = Not at all important 10 = Extremely important	How satisfied are you with your current level of performance of this activity? (0 - 10) 0 = Not satisfied at all 10 = Extremely satisfied		How satisfied are you with your current level of performance of this activity? (0 - 10) 0 = Not satisfied at all 10 = Extremely satisfied	
i.					
ii.					
iii.					
iv.					
v.					
			Score 1 Total of importance x satisfaction 1 scores = <input style="width: 40px;" type="text"/>	Score 2 Total of importance x satisfaction 2 scores = <input style="width: 40px;" type="text"/>	
			Change in satisfaction = Score 2 <input style="width: 40px;" type="text"/>	- Score 1 <input style="width: 40px;" type="text"/>	= <input style="width: 40px;" type="text"/>

Name / ID #: _____

THE WhOM

2. Some people use their wheelchairs because they want to participate in activities outside of their home such as dog walking, going for coffee, to work or to the park. What activities outside of your home or in your community would you use your wheelchair to perform?

Use this numerical scale to help fill in the table:
 0 1 2 3 4 5 6 7 8 9 10

Initial assessment Date:			Reassessment Date:		
Participation goals: Eg. Walking the dog Visiting my sister Watching a hockey game	Importance How important is this activity to you? (0 - 10) 0 = Not at all important 10 = Extremely important	Satisfaction 1 How satisfied are you with your current level of performance of this activity? (0 - 10) 0 = Not satisfied at all 10 = Extremely satisfied	Importance x Satisfaction 1	Satisfaction 2 How satisfied are you with your current level of performance of this activity? (0 - 10) 0 = Not satisfied at all 10 = Extremely satisfied	Importance x Satisfaction 2
i.					
ii.					
iii.					
iv.					
v.					
			Score 1		
			Total of importance x satisfaction 1 scores =	Score 2	
			Change in satisfaction = Score 2	-	Score 1 =

Name / ID #: _____

THE WhOM

Part II: BODY FUNCTION

Use this numerical scale to help fill in the table:
 0 1 2 3 4 5 6 7 8 9 10

Initial assessment Date:		Reassessment Date:	
Questions	Time 1	Time 2	
1. <i>How would you rate your comfort while sitting in your wheelchair? (0 - 10)</i> 0 = Not at all comfortable 10 = Extremely comfortable			
2. <i>How satisfied you are with the way your body is positioned in your wheelchair? (0 - 10)</i> 0 = Not at all satisfied 10 = Extremely satisfied			
3. <i>Over the past month have you had any episodes of skin breakdown on your bottom? (Please circle)</i>	Y N	Y N	
3a. <i>If yes, in your opinion, how severe has your skin breakdown been? (0 - 10)</i> 0 = Extremely severe 10 = Not at all severe			
Score 1 Total = <input type="text"/>		Score 2 Total = <input type="text"/>	
Change = Score 2 <input type="text"/> - Score 1 <input type="text"/> = <input type="text"/>			

APPENDIX B: PARTICIPANT INFORMATION SHEET



UNIVERSITY *of* LIMERICK

O L L S C O I L L U I M N I G H

Study Title

The evaluation of the Goal Attainment Scale and the Wheelchair Outcome Measure outcome measures for use during seating/wheelchair provision in SeatTech Enable Ireland.

Would you like to take part?

This information sheet is about a study which is taking place with SeatTech and Enable Ireland. It wishes to invite people who are due to be provided with wheelchair and seating to take part. The study will examine if a questionnaire can be used to see if the seating assessment and equipment provided meet the needs of the person. Before you decide to participate, it is important for you to understand why the research is being done and what your participation will entail. Please take time to read the following information carefully. Please ask about anything that is not clear or if you would like more information.

What is the purpose of the study?

- This study is being completed as part of masters and postdoctoral research at the University of Limerick
- The purpose of this study is to review the way that seating services are provided and to see if a standardised questionnaire can be used to determine the outcome.
- The lead researcher will work in partnership with SeatTech and Enable Ireland to connect with participants.

- Participants will complete an interview before, during and after they receive their seating/wheelchair- this interview will incorporate a standardised questionnaire.

What will I have to do?

If you agree to participate, the lead researcher, Rosie Gowran, will invite you to participate in three interview/questionnaire sessions which will be carried out by Masters Students from the MSc Occupational Therapy (Professional Qualification) programme at the University of Limerick.

Each meeting will include an interview about your experience and a standardised questionnaire. Information about both of these aspects of the meeting is below.

Interviews

- Interviews will be conducted at a time and place of convenience to you- the second interview will be conducted on the day of your SeatTech appointment.
- The interview will last a maximum of 90 minutes
- You will be asked questions about your seating/wheelchair.
- The interview will be recorded using audio equipment and later transcribed by the researchers
- Transcriptions will be returned to you to read so that you can make sure that they accurately reflect what you have said and allow you to make any changes.
- Your interviews will be analysed by the researchers to see what your experience of your wheelchair and seating is like.
- The results of the interviews will be used with the results of the standardised questionnaire to see if the questionnaire is effective.
- If you decide not to participate in the study at any time you can on request that the information that you provided to the researcher be removed from the study.

Outcome Measures (the questionnaire):

- As part of the interview, you will be invited to complete a standardised questionnaire with the researchers. These questionnaires are used to measure what the outcome of something is- in this case the provision of wheelchairs/seating to meet your needs- thus they are called outcome measures.
- The researcher will go through the standardised questionnaire with you and will write down your answers to the questions.
- Your answers to the questionnaire will be analysed. The results will be compared to what you said in the interview to see if the questionnaire accurately represents your experience.
- The answers that you give in the interview and in the questionnaire will be confidential.

What are the risks and benefits?

- There are no apparent risks in participating in the study.
- As with any interview process questioning may trigger issues that may cause an emotional response – if at any stage you wish to take a break from the interview and return to it later, you will be able to do this. If at any stage you wish to withdraw from the study and not participate any more, you will be able to do this.
- The direct benefit to you from taking part in this study is active participation in the development of SeatTech seating services.
- The information you provide will be very valuable in developing the service provided by SeatTech.

What will happen to the results? Confidentiality

- All the information you provide will be kept confidential at all times.
- The results of the study will be reported to the University of Limerick and Enable Ireland and presented as part of Master's thesis'

- The results will potentially be published at a later date.
- In order to maintain your confidentiality, your personal details i.e. your name, address and any other obviously identifiable information about you will be removed from all reports.
- Pseudonyms will be used, however given the nature of the small community involved in this area complete anonymity is not always possible.
- All audio tapes will be destroyed after information has been transcribed. Transcriptions will be stored on a password secured computer and hard copies will be stored in a locked cabinet.

Do you have to take part?/ Refusal or Withdrawal

- Taking part in this study is completely voluntary.
- You are entitled to refuse to participate in the interviews and you are free to withdraw at any time during the study.
- You may do so without fear of prejudice, this will not affect your relationship with Enable Ireland or SeatTech.

If you wish to take part or request for further Information

- If you wish to take part please sign the attached consent form and return it in the stamped addressed envelope provided.
- Should you require further information about this study please feel free to contact Rosie Gowran by phone on 061-202959.
- The Department of Occupational Therapy at the University of Limerick is also supervising this research on an ongoing basis.

Lead Researcher

Rosie Gowran,
 Department of Occupational Therapy,
 Faculty of Education and Health Science ,
 University of Limerick Email: rosie.gowran@ul.ie

APPENDIX C: CONSENT FORM



UNIVERSITY of LIMERICK

O L L S C O I L L U I M N I G H

STUDY TITLE:

'The evaluation of the Goal Attainment Scale and the Wheelchair Outcome Measure for use during seating/wheelchair provision in SeatTech Enable Ireland'

I _____ am aware that I am being invited to participate voluntarily in a research study about my perspective of an outcome measure that can be used during seating/wheelchair provision.

- I have read and understand the Information Sheet.
- I have been informed by the researcher that:

The purpose of this study is to explore the experience of using these outcome measures and to see if the outcome measure really reflects the user's experience of seating and wheelchair provision.

The findings will be used for master's thesis, for service change, for educational purpose and published in a variety of research journal.

My participation will involve:

The Interview and Outcome Measures :

The three interviews will involve a discussion with the researcher about my involvement with and perspective of the seating/wheelchair provided by SeatTech Enable Ireland and will last for up to one hour and thirty minutes. The interview will be recorded with handwritten notes and an audio device. I will get the opportunity to review and comment on all transcripts and analyses of the interview before the findings are disseminated. I am aware of the risks and benefits associated with the research.

- My participation and responses will be kept confidential at all times. I will not be identified nor will any identifying information about me to the organisation or be reported in any publications arising from this research.
- I am aware that pseudonyms will be used, however given the nature of the small community involved in this area complete anonymity is not always possible.
- My participation in this research is **completely voluntary** and I am free to refuse to participate.
- If I agree to participate, I can withdraw at any time, without any negative consequences.
- I understand that by signing this form, I am giving my consent to participate in the study described above.

|

|

Please complete the statements below to ensure fully informed consent:

- I am aware that I am volunteering to take part in a study that will explore:

- If at any time I was to feel unable to take part in the study I could:

I have received two copies of this form, one for me to keep and one to return to the researcher.

Signature of Participant

Date

Printed Name of Participant

Date

Signature of Witness

Date

(Staff/Family/Friend)

Signature of Researcher

Date

APPENDIX D: INITIAL INTERVIEW QUESTIONS

Introduction:

- Thank you for taking the time to meet with me today. First of all I will tell you about my research project.
- In order to identify areas for goal setting, we can look at things that you like to do, but are having difficulty with, or you would like to be able to do more often.

Questions

- What things do you like to do in your free time?
- How do you spend your time during the day and at the weekends?
- Are you in education/employment? What are the things you do there?
- Do you like to spend time in the community?
- Are you able to do the things you enjoy?
- Does your disability cause you problems in any areas?
- Can you describe any barriers that might effect you from carrying out activities?
- Would you like to be able to do any of these activities more often?
- Who do you like to do things with (family, friends, independently)?
- Wrap up with demographics: What age are you? Where are you from? Do you live independently or with family/friends?