

# QUALITATIVE ANALYSIS OF SEAT ELEVATOR SATISFACTION DATA

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## ABSTRACT

The purpose of the study at hand was to examine the qualitative data that was presented in a previous quantitative study, which reviewed the functional satisfaction in clients who were recommended by an ATP for a seat elevator (SE) on a power wheelchair (PWC). In this study, two categories of the comment section in the Functional Mobility Assessment (FMA) were analyzed; reach and transfer. The comments were assessed to be "positive," "neutral," or "negative" in nature and then based on repetition and key-words-in-context (KWIC), themes on the qualitative data was compiled. The themes for the reach category of the FMA was "limitations" for the no seat elevator (NSE) group, and "satisfaction" for the SE group. For the transfer category, the theme for both the NSE and SE groups was "dependence." Outliers, or participants who do not fit the overall pattern as the group as a whole, were also determined. Based on the themes that were constructed, SE's may create a positive impact on patients.

## INTRODUCTION

In past decades, people with disabilities (PWD) that utilized wheelchairs as a form of mobility were limited to a xy-planar movement. However, thanks to advances in assistive technology (AT), different seat functions have been added to mobility devices such as tilt-in-space, backrest recline, and elevating legrests, which have allowed PWD to move in a xyz-planar motion. Not only did these seat functions allow for more independence and function for the users, they have been proven to be medically important to accommodate different health issues. (Dicianno, 2015). The addition of a seat elevator (SE) has shown to be particularly important for a vertical movement

for wheelchair users. This ability to vertically move allows PWD to do important tasks that relate to their quality of living. (Arva et al., 2005). Specifically, SE's have shown to be important for reach and transfer. Previous guides state that SE's aid in performing everyday tasks for wheelchair users by enhancing transfer position, reach for shelves and cabinets, and allows users to have face-to-face conversations. (Batavia, 2010).

Despite the benefits of SE's, they often appear to be difficult to be covered by third-party payers. For Medicare to cover mobility assistive equipment, it must be proven that it will improve or maintain the user's performance of Mobility Related Activities of Daily Living (MRADL). MRADL's include categories such as bathing, toileting, grooming, dressing, and bathing within the person's home. (Centers for Medicare and Medicaid Services, 2016).

To provide insight into patient's assessment of their current satisfaction of performance in MRADLs, the Functional Mobility Assessment (FMA) has been proven to be valid. The FMA is a self-report and consumer centered questionnaire for both wheelchair and non-wheelchair individuals with a mobility impairment to report their functional status. In addition to the FMA, a Uniform Data Set (UDS) is also often collected to provide background and demographic information about the individual. Within the FMA two categories address the individuals' satisfaction in relation to SE's, one being reaching at different surface heights and the other being transferring from different surfaces.

A previous study performed at the University of Pittsburgh investigated self-reported functional satisfaction in performing reach, transfer, and overall mobility for mobility device users in relation to losing a SE,

maintaining a SE, and gaining a SE over two time periods. This was a quantitative study as a result of the FMA scoring within the cohorts. Ultimately, the study showed that their appeared to be a positive correlation between SE and higher satisfaction of the patients in these categories, as well as overall FMA scoring (Schiappa, 2016).

The purpose of this analysis was to assess the qualitative data that was also collected from this previous study to further review patients' satisfaction and insight to their MRADLs. Qualitative data provides insight to the participants' own viewpoints and story to the case at hand, rather than simply providing numbers to analyze. In a sense, qualitative data provides the "human factor" to research, by attempting to understand phenomenon based on the participants' own viewpoints (Halcomb, E. (2016). Based on the previous study, it was hypothesized that there would be positive correlation with SE and patient satisfaction qualitatively and a negative correlation with no seat elevators (NSE) and patient satisfaction.

## **METHODS**

### Participants

This project utilized the same participant group as the quantitative study for SE. The Institutional Review Board at the University of Pittsburgh Medical Center approved the project as an approved quality improvement project. Inclusion criteria included individuals who have and maintained a power wheelchair at time 1 and time 2, a SE was recommended at time 2, both time 1 and time 2 FMA were completed, and participants were 18 years of age or older. No exclusion criteria were conducted.

De-identified data was collected in collaboration with U.S. Rehab, a division of the VGM Group where the University of Pittsburgh researchers to collect large-scale FMA data from their network of accredited Equipment Suppliers put into a FMA registry. Following routine business practices, U.S. Rehab suppliers collaborated with clinicians to administers the FMA to people at the time of initial evaluation for a new mobility intervention. The data was only collected if a new SE was recommended by

a rehabilitation professional accredited as an Assistive Technology Practitioner (ATP), regardless if the SE was in fact required for the participant.

### Functional Mobility Assessment (FMA)

The FMA is a patient reported outcome measure (PROM) that allows patients to conclude a rating from 1-6, 1 being the lowest score of completely disagreeing, and 6 being the highest of completely agreeing. It is compiled of a series of questions that cover topics including daily routine, comfort needs, health needs, operation, reach, transfers, personal care, indoor mobility, outdoor mobility, and transportation (Kumar et al., 2013). The FMA has shown to have an overall test-retest reliability of the FMA is high. A total score can then be calculated to determine the participants satisfaction with their current means of mobility. Within each of the ten categories of the FMA, an optional comment section is provided. The participant is free to elaborate or note what they felt was important in relation to each category. The ten optional comments of the ten FMA categories is being analyzed in this study, especially in regard to the reach and transfer sections.

### Data Analysis

Within the quantitative data analysis for the SE, the study focused on three groups at two different time points, SE to SE, SE to NSE (no seat elevator), and NSE to SE. Within the analysis of this study, it was determined to focus on only two groups regardless of time periods, those with SE and those with NSE. This was decided due to the volume of participants who provided qualitative data was lower than those who provided quantitative data. There is a variety of different qualitative data analyses that can be conducted, such as grounded analysis and narrative analysis for example. These methodologies are known as true qualitative research since they follow well-defined research goals and carefully chosen research participants. (Harding, T., Whitehead, D., 2012). Due to the nature of the FMA optional comment section, the qualitative data that is being analyzed here is unsystematic data. Since the formatting does not allow one to analyze the data in the traditional qualitative

data processing system where there is usually questionnaire and coding processing structure, the best approach for the data that is being presented in this study would be illustrative test (themes) and outlier analysis. Themes allow one to construct and examine patterns amongst a phenomenon. Outliers allow one to explain why certain participants appear to be having a different outcome as compared to the data as a whole. First the data was analyzed solely on its own and not in relation to the quantitative data. A decision was made if the comment was "positive, neutral, or negative" in nature as reflection of the comments themselves, not how they related to how the commenter scored the category quantitatively. Themes were then created from the comments based on word repetition and key-words-in-context (KWIC) (Ryan, G., Bernard, H.R., 2003). Outliers were used to identify respondents who did not fit the overall results and determine if they contributed any qualitative responses that would indicate why they were different.

## **RESULTS**

### Grouping

The data that was collected for the quantitative study was collected and revised for this study. The three groupings were revised to two groups, one with SE and one without SEs. Following suit, participants that provided no qualitative data were removed. This resulted in 42 participants in the SE grouping and 15 participants in the NSE grouping. (Table 1).

### Themes

Within the NSE grouping, there was commonality between the group for both the reach and transfer categories. Within reach, a common repetition within the category was "does not" or "cannot" in relation to various surface heights. Of the 8 participants that commented in relation to reach, 7 were in relation to the limitation of the chair level. Based on this repetition and other KWIC, a theme for this category for the group was determined to be "limitations." The other comment remained "neutral" as there was not much context to refer if they felt positive or negative to their reach without the FMA scoring (Table 2) (Table 4). Within the transfer

category of the NSE, common word repetitions were "help" and "assistance". Of the 5 participants in this group, "help" is mentioned twice and assistance is mentioned twice. Based on the word repetitions and KWIC, a theme that was established for NSE for FMA transfer was dependence. When looking at the qualitative data as a whole for the NSE group, a SE data is mentioned specifically within the comfort category, starting "too short depth; need elevator lift to get on tables at doctor's office" (Table 3) (Table 4).

For the SE group, the data had a more positive theme to it. For FMA reach, seat elevators were mentioned specifically three out of the six comments. The comments include phrases like "loves seat elevator", "seat elevator means everything", and "very pleased with seat elevator and hand controls." A participant did mention they still required a gripper, and one participants mentioned they need to work on the controls more, while the other had not been able to use the chair yet. Due to the repetition of SE in a positive KWIC, a theme was determined to be "satisfaction" FMA Reach and SE (Table 2) (Table 4). Within the FMA transfer data, there still remained a repetition of assistance. Of the 20 comments, the word "assistance" or "help" is mentioned 7 times. There were two comments that were positive in nature, one mentioning the SE specifically, although the comment seemed to be more fitted to the Reach category rather than the Transfer category as they mentioned they were "able to see in mailbox and freezer not with seat elevator." The other positive comment stated, "much easier than old chair." The other comments were neutral in nature as they often mentioned they are still practicing or have not been able to use it much. While there are more positive comments in relation to transferring, the theme still remains "dependence" (Table 3) (Table 4). for FMA transfer in SE. However, based on the comments that stated they were still practicing, this "dependence" theme may transfer to "independence" as time occurs.

### Outliers

There were a few cases of outliers in the SE grouping. One participant scored a 37 ATS for the FMA. This participant stated that they were

dependent upon their daughter within the daily routine category and the daughter usually controls the chair under the operation category. One participant scored a 0 ATS for their FMA scoring. This participant chose "does not apply" for every category and for every comment they stated they "haven't used the chair yet." Another participant scored a 10 ATS. Within the daily routine category, the participant stated they are "not using the chair." Finally, another participant scored a 21 ATS. Within the daily routine, comfort, and indoor category, they mentioned multiple health providers were set to see the participant for some adjustments and concerns.

Within the NSE grouping, there was one participant that scored a relatively high FMA score, with a 53 ATS. However, it is important to note this participant's lowest FMA score is their reach, choosing "completely disagree," or a "1."

## CONCLUSION

Based on the nature of the qualitative data of the two groups, SE did appear to have a more positive nature than NSE. Also, there seemed to be a more positive theme switch in relation to NSE to a SE, moving from "limitation" to "satisfaction." While the transfer theme was determined to be "dependence" for both groups, SE did give insight to a more positive theme with more time with the device. Overall, based on this study, a SE may create a positive impact to a patient's life which will ultimately improve their MRADLs.

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