Category response analysis of the paid Caregiver Self-Efficacy Scale for Transfers

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Abstract

The purpose of this study was to develop and evaluate the psychometric properties of the rating scale used with the Paid Caregiver Self-Efficacy Scale (PCSEST). The PCSEST is a 19-item screening tool that was designed to measure paid caregivers’ perceived confidence in their ability to use proper body mechanics when lifting and/or transferring individuals who are semi- or non-ambulatory. This study utilized the Rasch Measurement Model and Linacre’s (2002) guidelines to evaluate the rating scale of the PCSEST and to analyze if the 5-point scale was effective in creating a valid assessment.

The majority of the response categories displayed unique peaks. Some response categories on the low end of the scale (zero to two) tended to not have unique peaks. Fourteen items advanced properly and five items had some disordering among response categories. The step difficulties also had some disordering at the lower end of the scale. Ninety-two of the 95 response categories had outfit mean squares of less than 2.0. Twenty-six of the 95 response categories advanced by at least 1.4 logits and all of the response categories advanced by less than 5.0 logits. Overall, the scale functioned well, except for the lower end where few participants used response categories zero to two.

The participants in this sample tended to be more confident, thus making it more difficult to accurately evaluate the lower end of the rating scale. Future research should include participants with a fuller range of confidence to evaluate all response categories on the rating scale. Occupational therapists can use the PCSEST to determine whether paid caregivers are at a higher risk for back pain and injuries resulting from poorly performed transfers. This information would be valuable to employers as they develop methods to enhance employees’ ability to transfer clients safely.
Category Response Analysis of the Paid Caregiver Self-Efficacy Scale for Transfers

In many settings the role of paid caregiver is becoming more common and very important. Paid caregivers have many physically challenging day to day tasks to complete when assisting individuals with disabilities. Many of these tasks require caregivers to lift and transfer individuals with and without transfer equipment. Lifting and transferring is moving semi-ambulatory or non-ambulatory individuals and their equipment to a specific destination. These tasks are physically demanding on the caregivers and result in an increased risk of musculoskeletal injuries. Caregivers need to be assessed for their confidence level and their ability to complete lifts or transfers using proper body mechanics. Assessing caregivers could determine whether they are at a higher risk for back pain and injuries resulting from poorly performed transfers. This information would be valuable to employers as they develop methods to enhance employees’ ability to transfer clients safely.

This study is part of a larger effort to develop an assessment instrument that can be used with paid caregivers of individuals who have physical disabilities and ambulatory problems. The assessment instrument will evaluate caregivers’ perceived self-efficacy to use the correct techniques when lifting and transferring individuals for whom they care. This assessment instrument can be used by occupational therapists and other practitioners to quickly assess a caregiver’s ability to perform transfers as safely and as efficiently as possible. In addition, the results of this assessment instrument can be used by an occupational therapist to develop interventions to help increase the knowledge and confidence of caregivers to safely complete transfers and reduce their chance for injuries. The current study was conducted in collaboration with Gelske (2009). The purpose of
her study was to use the Rasch Measurement Model to determine the reliability, validity, and sensitivity of the PCSEST (p. 2). The purpose of this study was to evaluate the psychometric properties of the rating scale used with the PCSEST.

Prior to describing this study, relevant information and literature will be reviewed. First, the concept of self-efficacy will be defined and explained. Secondly, the role of paid caregivers for non-ambulatory individuals and the relationship of caregiving to musculoskeletal injuries including back pain will be discussed. Thirdly, the rationale for why rating scales are used will be explained. Finally, the need for a self-efficacy assessment instrument focusing on the needs of paid caregivers will be proposed.

Self-Efficacy

Albert Bandura (1986) first described self-efficacy as a part of the Social Cognitive Theory. This theory “is an approach to understanding human cognition, action, motivation, and emotion that assumes that people are capable of self-reflection and self-regulation and that they are active shapers of their environments rather than simply passive reactors to them” (Maddux, 1995; p. 4). Volition and freedom of human behavior are essential ideas in the social cognitive theory and they contribute to the following assumptions for the theory (Maddux, 1995):

1. People have the remarkable capacity to use symbols. These symbols provide individuals with a powerful tool for understanding and managing their environment;
2. Most behavior is guided by forethought and is purposeful and/or goal-directed;
3. Individuals are capable of self-reflection and analyzing and evaluating their thoughts and experiences;
4. Individuals are capable of self-regulation by controlling their own behavior and environment;

5. Individuals “learn vicariously by observing other people’s behavior and its consequences;”

6. The capabilities mentioned in these assumptions are a result of “the evolution of complex neurophysiological mechanisms and structures;” and

7. “Environmental events, inner personal factors (cognition, emotion, and biological events), and behavior are mutually interacting influences” (i.e., triadic reciprocal causation or triadic reciprocality; p. 4-5).

The self-efficacy theory addresses the role of personal cognitive factors of the social cognitive theory (Maddux, 1995). Albert Bandura defined self-efficacy as a person’s belief about his or her capabilities to complete designated levels of performance that influence and affect one’s life (Bandura, 1994). He believed that beliefs of self-efficacy determines how individuals feel, think, behave, and how they motivate themselves (Bandura, 1994). According to Bandura (1977), the greater one’s perceived self-efficacy, the stronger the attempt will be to complete a given task and perceived self-efficacy has an impact on one’s choice and performance of a task.

Self-efficacy influences individuals to make decisions to either avoid tasks that they feel exceed their coping skills or complete tasks that they feel capable of performing (Bandura, 1977). In relation to the transferring of non-ambulatory individuals, caregivers’ levels of self-efficacy help determine if they are capable of performing a safe transfer without injuring themselves. The stronger the caregiver’s perceived self-efficacy for performing a transfer the more active the effort will be (Bandura, 1977). Self-efficacy
can have a direct influence on a caregiver’s choice of how to complete a given transfer. Further, once caregivers gain the knowledge of correct lifting and transferring techniques they will develop the confidence to use the skills that they have learned and demonstrate these proper body mechanics and avoid injury.

*Caregiving and Transfers*

A caregiver is anyone who offers assistance to someone who may be having difficulty with daily living skills because of physical, cognitive, or emotional impairments (Vitaliano, Zhang, & Scanlan, 2003). Paid caregivers can be nurses, nursing aids, and/or family members. They can work in a multitude of settings such as nursing homes, assisted living facilities, senior centers, and home health agencies. Caregivers aid individuals in performing a variety of day to day tasks. They assist with tasks such as bathing, cooking, cleaning, and running errands. A daily task that is important and frequently provided by caregivers is lifting and transferring individuals who have disabilities and/or illnesses. Since lifting and transferring is an essential part of a caregiver’s responsibilities, his or her ability to perform transfers safely should always be assessed.

A transfer involves manually or mechanically moving an individual from one place to another (Bolding, Adler, Tipton-Burton, & Lillie, 2006). A manual lift includes “lifting, transferring, repositioning, and moving patients using a caregiver’s body strength without the use of lifting equipment/aids to reduce forces on the worker’s musculoskeletal structure” (U.S. Department of Veterans Affairs, n.d.; p. 83). A mechanical lift involves “equipment used to lift, transfer, reposition, and move patients. Examples include portable base and ceiling track mounted full body sling lifts, stand
assist lifts, and mechanized lateral transfer aids” (U.S. Department of Veterans Affairs, n.d.; p. 83). There are nine considerations a caregiver should take into account prior to transferring his or her client. One should consider: 1) the weight and size of the individual; 2) the level of assistance the individual requires; 3) the ability of the individual to cooperate; 4) the specific medical condition(s); 5) if additional assistance is needed (e.g., team lift); 6) if mechanical equipment is required; 7) the safest way to move the individual; 8) the safest way for the caregiver; and 9) the distance the individual needs to be moved (U.S. Department of Labor, Occupational Safety and Health Administration [OSHA], 2000). Under estimating or disregarding these considerations can result in poor transfers and injury to the client and/or caregiver.

Caregivers can experience a wide variety of physical problems due to the nature of their job responsibilities. The largest subset of musculoskeletal injuries in the workplace occurs in the lower back (Feldstein, Valanis, Vollmer, Stevens, & Overton, 1993). According to the U.S. Department of Labor, Occupational Safety and Health Administration (n.d.), “back disorders result from exceeding the capabilities of muscles, tendons, and discs” (p. 2). Other contributors include (U.S. Department of Labor, Occupational Safety and Health Administration [OSHA], n.d.):

1. Reaching while lifting;
2. Poor posture;
3. Stressful living and working activities;
4. Poor body mechanics;
5. Poor physical condition;
6. Repetitive lifting of awkward items and equipment;
7. Twisting or bending while lifting;
8. Heavy lifting;
9. Fatigue;
10. Poor footing such as slippery floors or constrained posture; and
11. Lifting with forceful movement (p. 2).

Musculoskeletal disorders can occur because of excessive back and shoulder loading because of patient handling, awkward postures during patient care, applying excessive forces during the pushing and/or pulling of objects, and working long hours (Waters, Collins, Galinsky, & Caruso, 2006). Waters, Collins, Galinsky, & Caruso (2006) described a study conducted by the National Institute for Occupational Safety and Health (NIOSH), in which a survey was given to a diverse group of healthcare workers in four different states. The survey responses of workers who routinely performed one or more patient handling tasks (e.g., transferring in and out of bed, bathing, dressing, and undressing) were compared to workers who did not routinely perform patient handling tasks (p. 382). The results indicated that higher percentages of patient handlers reported having back (approximately 50%), shoulder and neck (approximately 34%), and leg and feet (approximately 50%) pain than non-patient handlers (p. 382). Patient handling tasks, such as lifting and transferring, contribute to individuals acquiring musculoskeletal disorders and can have an effect on the way a caregiver physically moves and positions his or her body in order to complete a job.

Ergonomics and Body Mechanics

When caregivers are lifting and transferring individuals who are non-ambulatory they face many ergonomic stressors. Examples of ergonomic stressors are force,
repetition, and awkward postures. Force is defined as the amount of physical effort required to perform a task. Repetition is described as duplicating the same motion(s) over and over. Awkward posture refers to placing stress on the body by assuming an uncomfortable position. These three stressors have all been associated with musculoskeletal injuries and can be found when transferring individuals who are non-ambulatory (U.S. Department of Labor, Occupational Safety and Health Administration [OSHA], 2000).

Body mechanics is the proper positioning and movement of the body (Pendleton & Schultz-Krohn, 2006). According to Rogers and Maurizio (1997), the basic principles for good body mechanics are the following: (1) lifting with the legs, keeping a wide base of support; (2) bowing in the lower back while bending over; (3) keeping the weight as close to the body as possible; (4) turning with the feet, not with the waist; (5) no jerking or twisting with lifting that involves turning; (6) keeping the body in good alignment, not leaning forward, backward, or to one side; and (7) keeping the lower back bowed when putting the weight back down. Using proper body mechanics can limit the stress and strain that is put on the structures in the musculoskeletal system.

Equipment and devices that can assist with proper body mechanics are inflatable lateral-assist devices, friction reducing lateral-assist devices, mechanical lateral-assist devices, transfer chairs, powered full-body sling lifts, powered stand-assist and reposition lifts, bed improvements to support transfer or repositioning, sliding boards, gait belts, stand-assist, and repositioning aids (de Castro, 2006). These devices help move the individual safely and prevent injury to the caregiver.
There have been many studies completed that address the impact of ergonomic, patient lifting, and back injury interventions to decrease musculoskeletal disorders in healthcare workers. Fujishiro, Weaver, Heaney, Hamrick, and Marras (2005) evaluated a statewide program that provided ergonomic consultation and financial support for purchasing ergonomic devices in order to decrease musculoskeletal disorders (MSDs) in healthcare workers. One hundred work units in 86 healthcare facilities were examined to determine if the MSD rates changed between pre-intervention (one year) and post-intervention (up to two years). The interventions that were provided through this program were linked to a gradual decrease in reported MSDs over a two year period (p. 345). The results of the study indicated that the median musculoskeletal disorder rate decreased from 12.32 to 6.64 for every 200,000 employee hours and that this type of intervention can be an effective intervention to decrease MSDs in healthcare workers (p. 341).

Nelson, Matz, Chen, Siddharthan, Lloyd, and Fragala (2006) conducted a study in which the first objective was to design and implement a program that integrated evidence-based practice, technology, and safety improvement for nurses. The second objective involved evaluating the “impact of the program on the injury rate, lost and modified work days, job satisfaction, self-reported unsafe patient handling acts, level of support for program, staff and patient acceptance, program effectiveness, cost, and return on investment” (p. 719). The multifaceted program had six major elements, ergonomic assessment protocol, patient handling assessment criteria and decision algorithms, peer safety leaders, patient handling equipment, after action reviews, and the no lift policy (p. 719). To evaluate the effectiveness of the program a pre/post design without a control
group was used. The data were collected through surveys, weekly process, injury, and

cost logs and the elements were compared over two nine month periods on 23 high risk

units in seven facilities. The study found that the program elements resulted in a decrease

in the rate of musculoskeletal injuries and the number of modified duty days taken per

injury (p. 725). Training and implementing interventions for individuals who work in

healthcare settings can increase the knowledge of risk factors and decrease the chance of

MSDs if they understand ergonomics, proper body mechanics, and the proper equipment
to use when lifting and transferring their patients.

*Occupational Therapy*

The term “occupation” means all of the tasks that are meaningful for day to day

living. These things include work, self-care, and leisure. According to the American

Occupational Therapy Association (n.d.), “occupational therapy is skilled treatment that

helps individuals achieve independence in all facets of their lives” (p. 1). Occupational

therapists assist people in developing the skills for the job of living and that are necessary

for independent and satisfying lives. Occupational therapists assist individuals who have

been affected by disease, aging, developmental delays, accident or injury, and

psychological impairments. Therapists work with individuals to make the essential life

transformations that assist them in becoming more independent.

Research can produce new knowledge that can be transferred into evidence-based

practice and can benefit the occupational therapy profession. The information received

from a perceived self-efficacy assessment instrument for paid caregivers can be used to

identify caregivers’ confidence for different aspects of their job. The information

obtained from the self-efficacy assessment instrument could reduce the risk of caregiver
injury by helping occupational therapists develop individualized plans and educate caregivers on how to use good body mechanics in order to be safe on the job.

*Rating Scales*

Rating scales are used to provide a means whereby people can provide responses to items asked on an assessment instrument. According to Smith, Wakely, DeKruif, & Swartz (2003), rating scales serve three functions. The scales permit the scale designer to focus on relevant research areas, provide multiple answers to each question, and require all respondents to use the same stimuli when formulating their responses (p. 371). Linacre (2002) states that “rating scales are employed as a means of extracting more information out of an item than would be obtained from a mere “yes/no,” “right/wrong,” or other dichotomy” (p. 85). Rating scales can be used in attitude questionnaires where individuals must choose from response categories such as Strongly Disagree, Disagree, Neutral or Undecided, Agree, and Strongly Agree, and in performance ratings where an individual must choose from categories such as Poor, Fair, Good, and Excellent (Masters & Reeves, 1999). Bandura (n.d.), believed that the standard methodology for measuring self-efficacy beliefs was for individuals to record responses on a 100-point scale, ranging in 10-unit intervals from 0 (“Cannot do”) to 100 (“Highly certain can do”). He also stated that a scale using the same structure and descriptors but uses single unit intervals ranging from 0 to 10 is simpler. Bandura (n.d.) indicated that “scales that use only a few steps should be avoided because they are less sensitive and less reliable” (p. 312).

Smith, Wakely, DeKruif, & Swartz (2003) conducted a study in which experimenters administered the Index of Self-Efficacy for Writing (ISEW) to fourth and fifth grade students. The ISEW is a 36-item test that was developed to rate the self-
efficacy for regulating cognitive processes associated with composing stories (p. 377).

The ISEW originally used a 10-point scale but after “an inspection of category counts, average measures, thresholds, and outfit mean-square statistics” it was revised and a 4-point scale was introduced (p. 387). Analysis of the revised 4-point scale revealed that the rating scale structure met all of the specified criteria, displayed congruency with the first study’s results, and confirmed the stability of the item fit statistics and the item hierarchy across the two samples. The results of this study indicate the “generalizibility of the findings” and confirm the use of this scale with similar samples of respondents using the four response categories on the rating scale (p. 387).

The main purpose of a study conducted by Bogner, Corrigan, Bode, & Heinemann (2000) was to “apply rating scale analysis (RSA) or Rasch Analysis to the ABS [Agitated Behavior Scale] in order to transform the ordinal scale to an interval scale of measurement” (p. 658). The ABS consists of 14-items and was developed to assess the nature and extent of agitation during the acute phase of recovery from acquired brain injury. Three samples were observed, including individuals with traumatic brain injuries (100), dementia (102), and anoxic encephalopathy (6). RSA was used to change the ordinal scale to an interval scale and the WINSTEPS computer program was used for RSA data calibration. The results indicated that the rating scale was used as intended. The average measures advanced monotonically (from lowest to highest). Also, the step difficulties increased monotonically and each response category was the most likely choice at some point along the continuum.

Keller & Kielhofner (2005) conducted a study, which was the second of two studies, in which they sought to refine the psychometric properties based on the previous
analysis of the Child Occupational Self-Assessment (COSA). The COSA is a self-report tool that contains 24 statements and has children rate how well they do an activity (competence) and how important it is to them (values) (p. 148). As a result of the first study completed on the COSA (Keller, Kafkes, & Kielhofner, 2005) the original 3-point rating scale was expanded to a 4-point scale. During this study Rasch analysis was used to evaluate the measurement properties of the Competence and Values rating scales. After the analysis it was determined that changing the scale resulted in an improved reliability and sensitivity. The analysis also indicated that the items worked well together to form measures of occupational competence and values. The results of this study confirmed that the COSA is a meaningful and reliable assessment that can be used to accurately show a young child’s perspectives concerning his or her occupational competence and values (p.156).

*History of the Caregiver Self-Efficacy Scale for Transfers*

Thomas, Shuford, Duke, & Cipriani (2007) developed the Caregiver Self-Efficacy Scale for Transfers (CSEST). This assessment was designed to measure how confident parent caregivers are that they can transfer their dependent children without injuring their backs. They used the Rasch Measurement Model to evaluate its psychometric properties. The results of this study indicated that the revised 14-item version of the CSEST showed sufficient reliability (reliability indices of .96 and .94 for respondents and items). The 14-item assessment instrument “fit the unidimensional ruler created by Rasch measurement, which contributes to the scale’s construct validity” (Thomas, Shuford, Duke, & Cipriani, 2007; p. 486). They also found that there was a sufficient separation of level of self-efficacy (item separation: 4.13 and person separation: 5.23). Factor
analysis confirmed two insubstantial subscales and the CSEST accounted for greater than 85% of the total variance indicating that the scale functioned as a unified measure.

The rating scale for the CSEST used 11-points, from 0 to 10. Darr (2006) used the Rasch Measurement Model’s rating scale analysis to analyze the performance of the 11-point scale for the CSEST. She used computer modeling to test various recombinations of the rating scale’s response categories. The results concluded that the 11-point rating scale did not meet Linacre’s (2002) guidelines for rating scale analysis. Darr (2006) found that collapsing the number of response categories would allow for a more optimal rating scale. The “analysis found that collapsed option nine was the most optimal” and the original 11 response categories were collapsed into five response categories (p. 15). Response categories zero and one became category zero; response categories two and three became category one; response categories four and five became category two; response categories six, seven, and eight became category three; and response categories nine and 10 became category four. She concluded that “the revised five point scale has potential for clearer probability curves, monotonic advancement of categories, advancement of step calibration, and the step difficulties to advance by at least 1.4 logits by less than 5.0” (p. 28).

Further research was completed by McPeck (2008) and Kubec (2008) to validate the psychometric properties of CSEST and evaluate the properties of the revised 5-point rating scale on a new sample of 213 caregivers. Kubec’s (2008) study used the Rasch Measurement Model to determine item and caregiver reliability indices (RI), outfit statistics on items and caregivers, order of perceived item difficulty, and item and
caregiver separation indices (SI). The results of this study indicated that the CSEST
demonstrated sufficient reliability, validity, and sensitivity.

McPeck’s (2008) study used the Rasch Measurement Model for rating scale
analysis and Linacre’s (2002) guidelines for rating scale evaluation. The following
research questions were asked about the 5-point scale: Does the 5-point rating scale
demonstrate optimal monotonic advancement of the average measures for each response
category, improve the step calibration for items, demonstrate improved distribution
amongst the probability curves, demonstrate response categories that have outfit mean-
square statistics that are less than 2.0 standardized units, demonstrate response categories
that advance by more than 1.4 logits and by less than 5.0 logits, and depending on the
results of the analysis of the 5-point scale, is there a further way to collapse the 5-point
scale to more optimally meet Linacre’s (2002) guidelines. Using WINSTEPS the Rasch
analysis generated “estimates of category structure, calibration structure, fit statistics, and
probability curves that graphically display how respondents used each response category
for each item” (p. 20). She addressed six of Linacre’s (2002) guidelines. Guideline
number two was met because there was no overlapping of the response category’s
probability curves. Guideline number three was met and indicated that all of the response
categories advanced monotonically. Guideline four was partially met. All but three
response categories had results less than 2.0 standardized units for each response
category. Guideline five was met with no dis-ordering indicating that the step difficulties
advanced monotonically. Guideline number seven was also partially met. Nine items did
not advance by at least 1.4 logitS, primarily between response categories one and two.
All of the items advanced by less than 5.0 logitS and fully met guideline number eight.
The results of this study found that the 5-point scale was a more optimal scale than the original 11-point rating scale because it more fully met Linacre’s (2002) guidelines.

**Current Study**

The purpose of this portion of the larger study was to evaluate the psychometric properties of the 5-point rating scale used with the PCSEST and to determine if the 5-point rating scale performs in a manner that best measured a paid caregivers’ self-efficacy. This study used Rasch Measurement Model for rating scale analysis and Linacre’s (2002) guidelines for rating scale evaluation to answer the following research questions: 1. Does the rating scale demonstrate regular distribution amongst the probability curves for each item? 2. Does the rating scale demonstrate optimal monotonic advancement of the average measures for each response category? 3. Does the rating scale demonstrate response categories with outfit mean-square statistic that advance by less than 2.0 standardized units? 4. Do the step difficulties advance with each successful response category for each of the items? 5. Does the rating scale demonstrate response categories that advance by more than 1.4 logits and by less than 5.0 logits? 6. Depending on the results of the analysis of the 5-point scale, is there a way to adjust the rating scale to more optimally meet Linacre’s (2002) guidelines?

**Methods**

**Participants**

The participants were employed at long term care facilities as full-time or part-time paid caregivers of individuals with mental retardation and developmental disabilities (MR/DD). Participants were English speaking and reading, at least 18 years of age, and in a position that required regular lifting and/or transferring of individuals as a part of
their daily job tasks. Participants were solicited from two intensive care facilities for individuals with mental retardation (ICF/MR facility) in Northwest Ohio.

Definitions

The same terms and definitions that were used in Darr’s (2006) study were used in this study. **Assessment instrument** refers to the Paid Caregiver Scale-Efficacy Scale for Transfers (PCSEST) as a whole. **Items** refer to the 19 items of the PCSEST that describes various transfer scenarios. **Rating scale** refers to the whole scale associated with each item on which the paid caregivers rate their level of confidence for each transfer situation. This rating scale has a 5-point scale with response categories ranging from zero to four. The same 5-point rating scale was used with each of the 19 items on the PCSEST. **Response category** refers to the individual options on the rating scale. Each of the 5-points on the rating scale was considered a response category. For example, zero was considered to be a response category; one was a response category, up to four which was the last number of the rating scale. See Appendix A for an example of the assessment instrument.

Instruments

The first step in the development of the PCSEST involved a focus group interview of paid caregivers who perform transfers at an ICF/MR facility. The objectives of the focus group were to determine: (1) what makes a lift and/or transfer easier or harder, (2) what makes a lift and/or transfer safe or unsafe, (3) the type of transfer training employees received, (4) if different working conditions affect a caregivers’ lifting and/or transferring abilities, (5) the demographic of the interviewed population,
and (6) any other opinions about lifting and transferring that were not asked directly through questioning.

The information gathered from the focus group was analyzed and used to create the items on the PCSEST. After completing a draft of the items in the survey it was distributed to occupational and physical therapists in the area. They were asked to rate each item for its importance and give input on various aspects of the survey. The items were then refined based on the therapists’ comments and feedback. The final PCSEST consisted of 19 items that addressed different daily occupations that dealt with the different types of transfers and examined each of them under optimal or adverse conditions. Based on Darr’s (2006) work, a 5-point rating scale was used with each item on the PCSEST. The 5-point rating scale consisted of response categories from zero to four. Response category zero was labeled “not at all confident,” two was labeled “moderately confident,” and four was labeled, “extremely confident” (See Appendix A).

Once the PCSEST was finalized, data collection packets were assembled that contained the information needed for the participants. Each of the data collection packets contained a cover letter that specified the purpose of the study, a demographic sheet, the PCSEST, and a plain return envelope. The letter stated that this study was completely voluntary, confidential, and anonymous and by returning the survey participants are consenting to participate in the study (See Appendix B). The demographic sheet was designed to collect specific information about the participants (See Appendix C). The participants were instructed to return the survey and demographic sheet in the sealed envelope to a specific location that was determined by the facility.

*Category Response Scale Analysis*
The Rasch Measurement Model for rating scales was used to analyze the data collected from the PCSEST (Linacre, 2002). A Rasch software program, WINSTEPS, generated data about each item’s rating scale and then was compared with the guidelines Linacre (2002) developed to evaluate the effectiveness of rating scales.

Linacre (2002) developed eight guidelines to evaluate rating scales. Guideline number one states that there has to be at least 10 observations of each category. At least 10 observations per response category are needed so that step difficulties can be precisely estimated and potentially stable.

Guideline number two states that there must be a regular observation distribution. This was analyzed through each item’s probability curves. A uniform distribution across each category is most favorable for step calibration. This is confirmed when each response category has its own unique peak. It is here where each category has the highest probability of being selected over any other response category (McPeck, 2008). Unique peaks for each response category also indicate that respondents view each category as different or unique from the other response categories.

The third guideline requires that the average measures must advance monotonically. This is the observed average column that WINSTEPS reports. The numbers in each response category should be ordered from lowest to highest. This indicates that they have reached a threshold and that as one moves up the self-efficacy continuum the next higher category will become the most likely response that the participants will select (Smith, Wakely, DeKruif, & Swartz, 2003).

The fourth guideline states that the outfit mean-square statistics should be less than 2.0. Linacre (2002) states that a reasonably uniform level of randomness must be
presented throughout the response category data. Those response categories that have a higher mean-square value than 2.0 indicate that the categories have been used in unexpected ways.

The fifth guideline requires that step difficulties advance monotonically. This is the structure calibration column that WINSTEPS reports. Each item’s structure calibration should be ordered from lowest to highest to decrease the chance of disordering. These data indicate the probability that the respondents will rate their abilities according to the response categories on the rating scale (McPeck, 2008).

The sixth guideline indicates that ratings imply measures, and measures imply ratings. This guideline cannot be reported by the WINSTEPS computer program. Linacre (2002) states that an “action is often based on one observation” and a single observation implies that there is an equivalent underlying measure (p. 99). Therefore, an underlying measure infers what behavior can be expected and depicts “what rating would be observed on a single item” (Linacre, 2002; p. 99). This means that respondents rate their own self-efficacy capabilities for each transfer situation based on their own general level of confidence with transfers.

Guideline number seven requires step difficulties to advance by at least 1.4 logits. The WINSTEPS program reports these advancements under the structure calibration column and then the step difficulties are calculated. If step difficulties should advance by less than 1.4 logits overlapping in the adjacent response categories could occur and response categories will not be perceived as unique.

Guideline number eight requires step difficulties to advance by less than 5.0 logits. The WINSTEPS program reports these advancements under the structure
calibration column and then the step difficulties are calculated. If step difficulties should advance by more than 5.0 logits then gaps in measurement ability between the adjacent response categories could occur. The rating scale will be perceived as having too much distance between response categories.

Procedures

The Institutional Review Board (IRB) at The University of Toledo Health Science Campus, previously known as The Medical University of Ohio approved this research (UT IRB# 105753). The investigators distributed 296 packets to two ICF/MR facilities in Northwest Ohio that agreed to participate in data collection. The paid caregivers received the research packets from the investigators and/or other health care professionals and staff at the facilities. Caregivers wishing to participate completed the survey, hand sealed the demographic sheet and survey in the envelope provided, and returned it anonymously to a labeled data collection box at their facility.

Results

There were 99 usable surveys returned. Over half (63.3%) of the surveys came from one facility and 36.3% of the surveys came from the second facility. Of the participants who returned the surveys 11% were part-time employees, 87.9% were full-time employees, and one percent did not respond to the question. The majority of the participants (85.9%) were female, nine percent were male, and five percent did not respond to the question. When the participants were asked the question of the number of years that they have been performing lifts and transfers the responses ranged from 0.2 to 22 years (M = 4.10, SD = 4.66) and three percent did not respond to the question.
In terms of the types of lifting and transferring training that the individuals received, 41.4% of the individuals received manual and mechanical lift training, nine percent received body mechanics training, five percent received ergonomic training, two percent received another type of training, such as Certified Nursing Assistant training, and 45.4% of the participants did not respond to the question. When asked the question of how often they have received lifting and transferring training, 42.4% indicated that they received it upon hire, 11.1% receive it annually, 11.1% indicated another response, and 44.4% did not respond to the question. Along with the question of how often they were trained, the participants were asked where they were trained. The majority (39.3%) of the individuals responded that they received their training at orientation, nine percent at an in-service, three percent during on the job training, 31.3% at the facility, and 24.2% did not respond to the question.

When the participants were asked the question “how many times a day on average would you say you use a manual lift (you and/or a co-worker team lifting a client),” the responses ranged from 0 to 75 times per day (M = 4.79, SD = 9.09). One percent responded “a lot,” four percent responded “daily,” and one percent indicated that they perform a manual lift “rarely.” The participants were also asked the question “how many times on average would you say you use a mechanical lift (assistive equipment)?” These responses ranged from 0 to 60 times per day (M = 7.92, SD = 8.70). Two percent responded “a lot,” five percent responded “daily,” one percent responded “rarely,” and one percent indicated that it “varies” the amount of times per day they perform a mechanical lift.
The majority (41.4%) of the participants indicated that they exercise 1-2 times per week, 28.2% reported no weekly participation in a exercise routine, 25.3% responded 3-5 times per week, and five percent responded 6-7 times per week. As far as overall self-reported health status, one percent indicated that they were in poor health, 14.1% indicated average, 47.5% indicated good, 36.4% indicated excellent, and one percent did not respond to the question. The majority (71.8%) of the participants reported that they did not currently have an ailment or injury. However, 28.3% of the participants indicated that they currently do have an ailment or injury. Of these individuals, 85.7% indicated musculoskeletal injuries, seven percent indicated arthritis, and seven percent indicated other issues such as high blood pressure. The majority (72.7%) of the participants indicated that they had never been injured while performing a lift and 27.3% of the participants indicated that they have been injured. Of the individuals that have been injured, 88.9% indicated that it was a musculoskeletal injury.

Using the WINSTEPS software program, the Rasch analyses generates estimates of category structure, calibration structure, fit statistics, and probability curves that graphically display how the participants used each response category for each item. Each of Linacre’s (2002) eight guidelines, with the exception of guideline six, was examined for the 19 items on the PCSEST.

Guideline number one states that there should be at least 10 observations of each response category. When analyzing the observed count column for each item, only item number fifteen fully met this guideline. The remaining items had some response categories with fewer than 10 observations each. The majority of response categories
that had fewer than 10 observations were on the low end of the rating scale, particularly response categories zero and one.

Guideline number two states that there should be a regular observation distribution amongst the response categories. The probability curves for each item were analyzed visually to determine if each response category had its own peak. Twelve of the items (items three, four, five, seven, eight, nine, ten, eleven, twelve, seventeen, eighteen, and nineteen) had response categories that each demonstrated their own unique peaks. Refer to Figure 1 for an example of the probability curve for item ten that displays unique peaks for each response category. However, for six items (items three, five, nine, eleven, seventeen, and eighteen) response category zero was not used by any respondents and therefore did not appear on the probability curves. Although response category zero was not used in items three, nine, seventeen, and eighteen, all of the other response categories did display unique peaks. Of the response categories that did not display unique peaks, response category one did not display a unique peak in items one, two, six, fourteen, and sixteen and response category two did not display a unique peak in items thirteen and fifteen. Refer to Figure 2 for an example of the probability curve for item two that did not display unique peaks for response category one.

Guideline number three was analyzed to determine if the average category measures advanced monotonically (ordered from lowest to highest). Response categories in 14 of the 19 items (items one, two, three, four, eight, nine, ten, eleven, thirteen, fourteen, fifteen, sixteen, seventeen, and eighteen) fully met this guideline. Five items (items five, six, seven, twelve, and nineteen) had response categories that displayed some disordereding. Refer to Table 1 for an example of disordering in item 5.
Guideline number four states that for each response category the outfit mean-squares must be less than 2.0. All but 3 of the 95 possible response categories across all items had outfit mean-squares less than 2.0. Item one had an outfit mean-square value of 2.34 in response category one, item five had an outfit mean-square value of 3.28 in response category one, and item nineteen had an outfit mean-square value of 2.33 in category response zero.

Guideline number five states that step difficulties (expressed as structure calibration in WINSTEPS) must advance monotonically (ordered from lowest to highest). Fourteen of the 19 items displayed step difficulties that advance from lowest to highest. Items two, fourteen, and sixteen displayed disordering between categories one and two (See Table 2). Items six and fifteen displayed disordering between categories two and three.

Guideline number seven requires step difficulties to advance by at least 1.4 logits. Items three, eight, and ten fully met this guideline. Sixteen items had some response categories that did not advance by 1.4 logits. Overall, 26 of 95 possible response categories advanced properly. Table 3 illustrates an example of item 1 where all step difficulties did not advance by at least 1.4 logits.

Guideline number eight requires step difficulties to advance by less than 5.0 logits. All items fully met the criteria of this guideline. See Table 3 for an example of one item illustrating step difficulties that met this guideline.

Discussion

The purpose of this study was to evaluate the psychometric properties of the rating scale of the PCSEST. This study used the Rasch Measurement Model for rating
scale analysis and Linacre’s (2002) guidelines for rating scale evaluation to answer the following research questions: 1. Does the rating scale demonstrate regular distribution amongst the probability curves for each item? 2. Does the rating scale demonstrate optimal monotonic advancement of the average measures for each response category? 3. Does the rating scale demonstrate response categories with outfit mean-square statistic that advance by less than 2.0 standardized units? 4. Do the step difficulties advance with each successful response category for each of the items? 5. Does the rating scale demonstrate response categories that advance by more than 1.4 logits and by less than 5.0 logits? 6. Depending on the results of the analysis of the 5-point scale, is there a way to adjust the rating scale to more optimally meet Linacre’s (2002) guidelines?

Guideline one states that there must be at least 10 observations of each response category. This guideline was only fully met by item number fifteen. The other 18 items’ response categories had fewer than 10 observations in each response category. This occurred primarily in response categories zero and one. One explanation for the lack of observations at the lower end of the rating scale is that the caregivers in this sample were comparatively more confident in their abilities to perform transfers. Linacre (2002) states that when a response category’s frequency is low, then the step calibration is poorly estimated, potentially unstable, and can change the rating scales estimated structure. We lacked enough data to adequately estimate the lower end of the rating scales’ response categories. It is possible that a larger sample size could alleviate this problem, but only if the sample includes respondents with a wide range of perceived self-efficacy for transfers.
The second guideline requires regular distribution of the probability curves as demonstrated by each response category having its own peak. The results show that 12 of the items had response categories that demonstrated their own unique peaks. Of the items that did not show unique peaks, category zero was not used by any respondents, five items did not display a unique peak in response category one, and two items did not display unique peaks in response category two. Although response category zero was not used in four items, all the other response categories did display unique peaks. The lack of regular distribution amongst all probability curves, especially at the lower end of the rating scale, implies that the sample was more confident than other potential samples. The lack of enough participants using the lower end of the rating scale resulted in the inability to fully evaluate those lower response categories. However, where sufficient data were available, the response categories performed well and each had its own unique peak. Respondents seemed to be able to accurately use the 5-point scale.

Guideline three states that the average measures should advance monotonically with each response category. In order for numbers to advance monotonically they must first reach a threshold (McPeck, 2008). As response categories reach the threshold, the average measure for the next response category increases in magnitude. This indicates that as one moves up the self-efficacy continuum the next higher category will become the most likely response that the participants will select (Smith, Wakely, DeKruif, & Swartz, 2003). The results for the PCSEST’s rating scale indicated that 14 of the 19 items fully met this guideline. For the five items that did not advance monotonically the disordering occurred in the lower end of the scale. Since participants tended not to use the lower end of the rating scale, there may not have been enough data to provide
stability for analysis in these five items. Testing the PCSEST with a sample of caregivers who have a broader range of self-efficacy for transferring would provide potentially more data at the lower end of the rating scale for a better analysis of its structure.

Guideline four requires the outfit mean-square statistics for each response category in each item should be less than 2.0. This demonstrates that there is a reasonable level of randomness that is present within the response category data (McPeck, 2008). The results indicate that the majority of the items had outfit mean-squares less than 2.0. Out of the 95 possible response categories only three did not meet this guideline. This indicates that the majority of the respondents were using the PCSEST response categories in the correct contexts. It also indicated that there was not a high level of unexplained randomness or unsystematic variation in how the rating scale was used.

Guideline five states that step difficulties should advance monotonically. The results indicate that 14 of the 19 items advanced from lowest to highest. Of the items that did not advance monotonically three items displayed disordering between categories one and two and two items displayed disordering between categories two and three. The disordered step difficulties imply that these response categories may not have been used according to the descriptors associated with the rating scale. It is also possible that the lack of data points at the lower end of the rating scale influenced the ability to accurately judge the effectiveness of the rating scale for these five items.

Guideline seven and eight state that step difficulties need to advance by at least 1.4 logits, but no more than 5.0 logits respectively. All response categories advanced by less than 5.0 logits indicating that the rating scale did not have gaps in its ability to
measure the continuum of self-efficacy. Sixteen items had some response categories that
did not advance by 1.4 logits. When step difficulties advance by less than 1.4 logits then
there is overlapping in the adjacent response categories and caregivers may not perceive
each response category as unique. Another sample of caregivers with a broader range of
self-efficacy should be tested to see if this issue resolves with more diversity of self-
efficacy.

Before addressing whether or not there is a way to adjust the rating scale
collapsing response categories) to more optimally meet Linacre’s (2002) guidelines,
additional studies should be completed. As the number of response categories decreases,
the rating scale will lose its sensitivity to estimate the overall self-efficacy for transfers
and to detect changes in self-efficacy over time or as a result of interventions. It is
possible that the issues identified on the lower end of the rating scale could disappear if
more respondents in the analysis used those response categories. This would require a
larger sample size of respondents who have more diverse levels of self-efficacy. A
greater number of newly hired employees should also be included since they may not
have enough experience with lifting and transferring to develop higher levels of
confidence. At this time it would be premature to change the number of response
categories before incorporating the preceding suggestions in another study.

In summary, the results demonstrated the majority of response categories
displayed unique peaks; some response categories on the low end of the scale (zero to
two) tended not to have unique peaks; 14 items advanced properly and five items had
some disordered among response categories; step difficulties had some disordered on
the low end of the scale; 92 of the 95 response categories had outfit mean-squares of less
than 2.0; and response categories in 3 of the 19 items advanced by 1.4 logits and all response categories advanced by less than 5.0 logits. Overall, the rating scale functioned well, except for the lower end where few participants used response categories zero and one. The sample of participants tended to be somewhat confident making it more difficult to accurately evaluate the lower end of the rating scale. Another study with varying levels of confidence should be completed before determining if the rating scale needs to be adjusted to more optimally meet Linacre’s (2002) guidelines.

Limitations and Future Research

There were three main limitations to this study. First, only two ICF/MR facilities in Northwest Ohio agreed to participate in the study and were given the PCSEST for their employees. Future research should attempt to solicit more facilities in and surrounding Northwest Ohio in order for the results to be generalized. Additional sites may also increase the chances of obtaining a larger sample size. Secondly, only 99 out of 296 surveys were returned to the investigators. The small sample contributed to difficulty evaluating the lower end of the rating scale. Future research should include a larger sample of paid caregivers. Lastly, the sample of caregivers used in this study appeared to be a more confident sample. Testing the PCSEST with a sample of more diverse caregivers who have a broader range of self-efficacy for performing lifts and/or transfers would provide potentially more data at the lower end of the rating scale for a better analysis of its structure.

Implications for Occupational Therapy

This study provides sufficient initial evidence that the PCSEST can be used in a health care setting. Occupational therapists who are employed at a site in which they
assist individuals who are semi- or non-ambulatory are in the ideal position to administer the PCSEST. The PCSEST can be used as a quick screening tool to identify the level of self-efficacy a paid caregiver has when performing different types of manual and mechanical lifts and/or transfers in varying conditions. With this information an occupational therapists can assist paid caregivers in identify their individual unsafe lifting and transferring methods and teaching these individuals the correct techniques to reduce the chance of injury. The PCSEST can identify the areas in which caregivers feel more or less confident in performing lifting and/or transferring tasks. Therapists can then work with employers to coordinate training and implement interventions in order to increase employees’ knowledge of risk factors and level of confidence in his or her transfer skills, and how to decrease the chance of musculoskeletal disorders. Trainings and interventions would focus on helping caregivers understand ergonomics, proper body mechanics, and the proper equipment to use when lifting and transferring their patients in specific conditions. Self-efficacy for transferring could be re-assessed to determine if training and interventions are improving confidence in employees’ skills. The PCSEST may be a valuable tool in the early stages of employment to identify the newly hired employees who are not as confident in their transferring abilities as they could be. Early intervention could assist caregivers in receiving individualized help before poor transferring habits or injury occur.

**Conclusion**

The purpose of this study was to evaluate the psychometric properties of the rating scale of the PCSEST. This study used the Rasch Measurement Model for rating scale analysis and Linacre’s (2002) guidelines for rating scale evaluation. Overall, the
rating scale functioned well, except for the lower end where few participants used response categories zero and one. The sample of participants tended to be somewhat confident making it more difficult to accurately evaluate the lower end of the rating scale. This study provides adequate preliminary evidence that the PCSEST can be used by occupational therapists and employers to develop interventions to help increase the knowledge and confidence of caregivers to safely complete transfers and reduce their chance for injuries. Future research that includes participants with a fuller range of confidence should be completed in order to more fully evaluate all of the response categories on the PCSEST’s rating scale.

Acknowledgements

The author would like to sincerely express gratitude to all of the individuals who assisted with this research study. Julie Jepsen Thomas, Ph.D., OTR/L, FAOTA, research advisor, offered continual patience, support, and guidance over the course of this research process. Kelly A. Gelske, BS, whose research was conducted in collaboration with this project, provided constant encouragement and valued assistance. Daniel J. Cipriani, III, Ph.D., PT, Associate Professor at San Diego State University, examined and explained the data from the statistical analysis. The multiple therapists and other staff members at differing facilities assisted with the development and the distribution of the PCSEST, and the caregivers who took part in the survey provided valuable information. Lastly, the author would like to show a great appreciation to her loved ones for their endless love and support throughout the past three years.
References


Appendix A

Paid Caregiver Self-Efficacy Scale for Transfers

After each item, please rate how confident you are that you could do the task without straining your back if you were to find yourself in that situation today. With each item, consider that you are transferring a fully grown adult of average weight. “Straining your back” means having soreness or pain in your back after completing the lift or transfer. Manual transfers are those where you do not use a lift or lifting equipment. Mechanical transfers are those where you use lifting equipment. Rate the degree of confidence that you are feeling right now by circling a number from 0 to 4 on the scale after each item.

1. You are giving a bath in a raised tub (approximately 3 ½ feet tall); you are feeling hurried and running late. How confident are you that you can mechanically transfer a client who is wet without straining your back?

   
   0  1  2  3  4  
   not at all confident  moderately confident  extremely confident

2. You are feeling hurried and running late. How confident are you that you can mechanically transfer a client who is having a verbal behavior problem without straining your back?

   0  1  2  3  4  
   not at all confident  moderately confident  extremely confident

3. You are working with a client who cannot communicate with you verbally and/or non-verbally; you are hurried and running late. How confident are you that you can mechanically transfer the client without straining your back?

   0  1  2  3  4  
   not at all confident  moderately confident  extremely confident
4. You are working with a client on a non-adjustable surface (i.e. couch). How confident are you that you can mechanically transfer the client without straining your back?

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5. You are feeling rested; you are calm and have plenty of time. How confident are you that you can mechanically transfer a client from wheelchair to bed without straining your back?

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6. You are feeling calm and have plenty of time. How confident are you that you can manually transfer a client who is having a verbal behavior problem without straining your back?

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7. You are feeling tired and fatigued; you are hurried and running late. How confident are you that you can mechanically transfer a client from wheelchair to bed without straining your back?

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8. You are on an outing; you and a co-worker need to transfer a client and must maneuver in a tight area such as a bathroom. How confident are you that you can manually transfer the client out of his or her wheelchair without straining your back?

- 0: not at all confident
- 1: moderately confident
- 2: extremely confident

9. You are giving a bath in a raised tub (approximately 3 ½ feet tall); you are feeling calm and have plenty of time. How confident are you that you can mechanically transfer a client who is wet without straining your back?

- 0: not at all confident
- 1: moderately confident
- 2: extremely confident

10. You are working with a semi-ambulatory client (able to stand and take steps with staff assistance) who is on the floor and refuses to stand. You are feeling hurried, and you are running late; you are the only staff. How confident are you that you can safely manually assist the client from the floor to a chair without straining your back?

- 0: not at all confident
- 1: moderately confident
- 2: extremely confident

11. You are feeling calm and have plenty of time. How confident are you that you can mechanically transfer a client who is having a verbal behavior problem without straining your back?

- 0: not at all confident
- 1: moderately confident
- 2: extremely confident
12. You are transferring a client using the **mechanical lift**; you need to move the lift and the client from a **carpeted area to the tile floor, going over a rubber floor strip**. How confident are you that you can do this task without straining your back?

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13. You are on an **outing**; you and a co-worker need to transfer a client and must maneuver in an **open area**. How confident are you that you can **manually** transfer the client out of his or her wheelchair without straining your back?

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14. You are feeling **hurried and running late**. How confident are you that you can **manually** transfer a client who is having a **verbal behavior problem** without straining your back?

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15. You have an emergency situation such as a **fire drill** and have help from a co-worker who **does not appear confident**. How confident are you that you can **manually** transfer the client without straining your back?

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16. You are working with a **semi-ambulatory client** (able to stand and take steps with staff assistance) who is on the floor and wants to stand. You are feeling **calm and have plenty of time**; you are the only staff. How confident are you that you can **manually** assist the client from the floor to a chair without straining your back?

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17. You are working with a client on an **adjustable hospital bed**. How confident are you that you can **mechanically** transfer the client without straining your back?

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18. You are working with a client who **can communicate** with you verbally and/or non-verbally; you are **calm and have plenty of time**. How confident are you that you can **mechanically** transfer the client without straining your back?

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19. You have an emergency situation such as a **fire drill** and have help from a co-worker who **appears confident**. How confident are you that you can **manually** transfer the client without straining your back?

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Appendix B

Dear Paid Caregiver:

We are students in the occupational therapy doctoral program at the University of Toledo Health Science Campus. We are developing a survey for paid caregivers. This survey is meant to assist employers in determining how confident staff feel in their abilities to lift and/or transfer individuals without causing themselves back or neck injury. We request your help by taking ten minutes to complete this anonymous survey. By completing the enclosed survey and demographic form, you will be assisting us in determining how valid and reliable the survey is.

When you finish the survey return it and the demographic form in the enclosed sealed envelope to _____________________________________________________________ as soon as you can. We appreciate your willingness to assist in our project. We hope to have at least seventy-five caregivers participate. It is our objective to assist employers in reducing the number of back and neck injuries from lifting or transferring clients.

Your participation is completely voluntary and by returning the survey you are giving your consent to participate. This survey is anonymous, so please do not put your name on the survey or demographic form.

If you have any questions about the survey, please phone Kelly Gelske (419) 467-2445 or Shaundra Garrett (567) 204-0417 or Julie Thomas (419) 383-5068. Thank you very much for your help!

Sincerely,

Kelly Gelske, Occupational Therapy Student

Shaundra Garrett, Occupational Therapy Student

Julie Jepsen Thomas, Advisor, Ph.D., OTR/L
Appendix C

Demographic Form

Facility: ____________________________________________
Position: ____________________________________________

Circle:     Full-time     Part-time                                         Male      Female

1. How many years have you been completing lifts/transfers? _____________________________

2. What type of lifting/transfer training have you taken? How often? Where?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

3. How many times a day on average would you say you use a manual lift (you and/or a co-
worker team lifting a client)? _________________

4. How many times a day on average would you say you use a mechanical lift (assistive
equipment)? ___________

5. How many times a week do you exercise/workout? (Circle)

  0     1-2     3-5     6-7

6. How would you rate your overall health? (Please check one)

   Excellent (I feel healthy and able to perform my daily routine all of the time) _____
   Good (I feel healthy and able to perform my daily routine most of the time) _____
   Average (I feel healthy and able to perform my daily routine some of the time) _____
   Poor (I rarely feel healthy and able to perform my daily routine) _____

7. Do you currently have an ailment/injury? If so, please explain:_________________________
______________________________________________________________________________

8. Have you ever been injured while performing a lift?   Yes    No
If yes, please explain what type of injury you had:______________________________________
______________________________________________________________________________
______________________________________________________________________________
Table 1

<table>
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<tr>
<th>Response Category</th>
<th>Observed Average</th>
<th>Structure Calibration</th>
<th>Step Difficulties</th>
<th>Outfit Mean-Square</th>
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<tbody>
<tr>
<td>Zero</td>
<td>.10</td>
<td>NONE</td>
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<td>2.05</td>
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<tr>
<td>One</td>
<td>-.08*</td>
<td>-.90</td>
<td>.90</td>
<td>1.20</td>
</tr>
<tr>
<td>Two</td>
<td>.45</td>
<td>1.08</td>
<td>.18</td>
<td>1.42</td>
</tr>
<tr>
<td>Three</td>
<td>1.30</td>
<td>.40</td>
<td>.68</td>
<td>.78</td>
</tr>
<tr>
<td>Four</td>
<td>2.57</td>
<td>1.58</td>
<td>1.18</td>
<td>.99</td>
</tr>
</tbody>
</table>

* This shows that there was disordering in response category one.
Table 2
Rasch Measurement Model Analysis for Item 2: Self-Efficacy of a Caregiver
Mechanically Transferring a Client Who Having a Verbal Behavior Problem Adverse Conditions.

<table>
<thead>
<tr>
<th>Response Category</th>
<th>Observed Average</th>
<th>Structure Calibration</th>
<th>Step Difficulties</th>
<th>Outfit Mean-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero</td>
<td>-.47</td>
<td>NONE</td>
<td></td>
<td>1.42</td>
</tr>
<tr>
<td>One</td>
<td>.23</td>
<td>-.32</td>
<td>.32</td>
<td>2.01</td>
</tr>
<tr>
<td>Two</td>
<td>.41</td>
<td>-2.14*</td>
<td>1.82</td>
<td>.80</td>
</tr>
<tr>
<td>Three</td>
<td>1.49</td>
<td>.78</td>
<td>1.36</td>
<td>1.27</td>
</tr>
<tr>
<td>Four</td>
<td>2.55</td>
<td>1.68</td>
<td>.9</td>
<td>1.10</td>
</tr>
</tbody>
</table>

* This shows that there was disordering between categories one and two.
Table 3

Rasch Measurement Model Analysis for Item 1: Self-Efficacy of a Caregiver
Mechanically Transferring a Client Who is Wet Under Adverse Conditions.

<table>
<thead>
<tr>
<th>Response Category</th>
<th>Observed Average</th>
<th>Structure Calibration</th>
<th>Step Difficulties</th>
<th>Outfit Mean-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero</td>
<td>.05</td>
<td>NONE</td>
<td></td>
<td>1.93</td>
</tr>
<tr>
<td>One</td>
<td>.18</td>
<td>-.89</td>
<td>.89</td>
<td>2.34</td>
</tr>
<tr>
<td>Two</td>
<td>.44</td>
<td>-.69</td>
<td>.2</td>
<td>.89</td>
</tr>
<tr>
<td>Three</td>
<td>1.17</td>
<td>.18</td>
<td>.87</td>
<td>1.19</td>
</tr>
<tr>
<td>Four</td>
<td>2.59</td>
<td>1.40</td>
<td>1.22</td>
<td>.97</td>
</tr>
</tbody>
</table>

Note: The step difficulties are the difference between the structure calibration of the number above and the number on the same line. For example -.89-(-.69) = -.2
Figure 1. Probability response curve of Item 10: Manually assisting a client from the floor to a chair under adverse conditions.

Note: Each response category has its own unique peak.
**Figure 2.** Probability response curve of Item 2: Mechanically transferring a client who is having a verbal behavior under adverse conditions.

Note: Response category one does not display its own peak.