THESIS

ACQUIRING STAKEHOLDER INPUT ON THE CLINICAL USEFULNESS OF MEASURING OUTCOMES OF THERAPEUTIC HORSEBACK RIDING

Submitted by

Moriah R. Hanson

Department of Occupational Therapy

In partial fulfillment of the requirements

For the Degree of Master of Science

Colorado State University

Fort Collins, Colorado

Fall 2023

Master's Committee:

Advisor: Caiti Peters
Co-Advisor: Arlene Schmid

Lorann Stallones

ABSTRACT

ACQUIRING STAKEHOLDER INPUT ON THE CLINICAL USEFULNESS OF MEASURING OUTCOMES OF THERAPEUTIC HORSEBACK RIDING

Therapeutic riding (TR) is a recreational activity which provides mounted and ground-based horsemanship opportunities adapted to the abilities of the participants Click or tap here to enter text.. TR provides physical and psychological benefits to participants with diverse disabilities, including physical, developmental, cognitive, and age-related disabilities, promoting higher quality of life (QoL); however, certified therapeutic riding instructors (CTRIs) and centers are limited in their capacity to implement outcome assessments and report the benefits of their community-based TR programs to a broad audience due to credentialing requirements, time restraints, and limited financial resources. Therefore, the purpose of this study was to identify whether and how TR professionals are currently measuring participant outcomes; benefits and barriers to implementing standardized assessments in TR; and characteristics which would make TR assessments clinically useful in the community TR environment. To address this purpose, we conducted a computer-based survey among TR stakeholders. We identified that while TR professionals measure outcomes among their participants, they typically do not use standardized assessments. Benefits of implementing standardized assessments included bolstering the TR profession, acquiring funding, and communicating about TR services with a broad audience. Barriers to implementing standardized assessments included time, systemic, and expertise constraints. Respondents reported that standardized assessments should be relevant to all age groups and populations who receive TR services. Finally, our respondents reported that for

standardized assessments to be clinically useful, they would need to be low-cost (free or $1 – 2 per use), require less than 20 minutes, and available in either paper or computer format. This study revealed that standardized assessments may be a strong support to the TR profession; however, assessments must meet the needs of TR providers in the community.

ACKNOWLEDGEMENTS

I would like to first acknowledge that any ability to complete this research project and degree did not come from me. Rather, my God and Creator brought me to and through this program, and I am here by His grace alone. I would also like to thank my advisor, Dr. Caiti Peters, without whose organization, encouragement, and thoughtful editing, I would not have been able to successfully complete a thesis. Finally, I am immensely grateful to my husband, my family, and my dear friends, all of whom have offered me support, guidance, and many joy-filled moments throughout my graduate school journey.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

Statement of the Problem

Therapeutic Riding (TR), or adaptive riding, is a recreational activity in which horseback riding is adapted to the needs of individual participants with diverse abilities and diagnoses (Gabriels et al., 2015). TR typically occurs in a group setting, with a CTRI teaching skills that address horsemanship goals. TR is unique from occupational or physical therapy in an equine environment, both of which incorporate horses into interventions targeted at achieving specific occupational or physical therapy goals. TR, however, is a recreational occupation that allows diverse populations to access the natural benefits of horsemanship (Wood et al., 2021). Additionally, TR has been proposed to improve self-confidence, motivation, courage, social involvement, and provides an engaging opportunity for physical activity, all of which could be linked to enhanced quality of life (QoL) among people with disabilities (Farias-Tomaszewski et al., 2001).

Despite research demonstrating that TR can benefit people in diverse populations, CTRIs and TR centers often lack means of measuring and communicating the outcomes of their services to stakeholders (e.g., current and prospective clients, referral sources, funders, etc.). Many assessments used to measure TR outcomes in research studies require administrators to be licensed health professionals or hold a master's degree in a related field (Pearson Assessments, 2020). Such requirements limit the use of assessments by CTRIs who are certified by PATH Intl. but may not have post-secondary education. Furthermore, many of the measures implemented in research studies require observation from multiple raters, coding throughout TR sessions, and time outside the TR session for scoring and interpretation (Fields et al., 2018; Johnson et al., 2018). Finally, assessments implemented in TR research are often specific to a specific

population under investigation, whereas community-based TR is most often provided to diverse clients from a variety of age groups and with diverse diagnoses or life experiences. These barriers all prohibit TR centers and CTRIs from implementing assessments that can measure the impact of their services on participants. It is imperative that CTRIs and TR centers have assessments that are clinically useful, meaning they can be implemented within the time, expertise, budget, and practical restraints inherent to community-based TR services (Hunsley & Mash, 2007). To better understand the benefits of TR and the current outcome assessments in use, I conducted a literature review of relevant databases.

Literature Review

TR Benefits for Different Populations

TR provides emotional, social, and physical benefits to many populations, including people with autism spectrum disorder (ASD), neurodevelopmental disorders, veterans, and older adults. These benefits may contribute to improved QoL for these populations by enhancing their social, emotional, and physical well-being and providing an accessible opportunity for engagement in a recreational occupation (Wood et al., 2021).

Social and Emotional Functioning Benefits

One benefit that TR provides among diverse participants is improving social and emotional functioning. For people with ASD and attention deficit hyperactivity disorder (ADHD), TR has been evidenced to improve social outcomes (Gabriels et al., 2015; Farias-Tomaszewski et al., 2001). In an evaluation of a 12-week TR intervention, children with ASD displayed improved markers of social functioning, including sensory integration, social motivation, sensory sensitivity, inattention, and distractibility after participating in the TR program (Bass et al., 2009). In adults with physical disabilities, participation in a 12-week TR

program improved physical self-efficacy and confidence (Farias-Tomaszewski et al., 2001). Researchers also identified a dose-response relationship between the self-efficacy and confidence factors and TR participation where individuals who participated longer experienced greater increases in physical self-efficacy and confidence. Among military veterans, 6-week TR participation clinically improved PTSD symptoms, emotional regulation, self-efficacy, and loneliness scores among military veterans (Johnson et al., 2018). In a group of older adults with dementia, an 8-week TR program improved several markers of dementia-related QoL, including conversation, engaged gaze, walking, and participation in complex activities (Fields et al., 2018). Additionally, a study comparing a TR program with adaptive gardening for older adults with dementia identified that participants in the TR group displayed greater levels of complex active participation than those in the gardening group (Lassell et al., 2021). They also expressed pleasure to a greater extent, with one participant repeatedly kissing her donkey's nose. These studies, as well as several others, have indicated that TR has the capacity to improve several social and emotional dimensions of QoL of life for diverse populations.

Physical Well-Being Benefits

Many studies have also indicated that participating in TR promotes physical wellbeing. In a 2021 review on the influence of equine-assisted services on children with ADHD, those participating in TR displayed motor control improvements, increases in brain-derived neurotrophic factor, low levels of which are linked to ADHD symptoms, and improved cerebellar function (Helmer et al., 2021). A review of equine-assisted services for people with ASD indicated that TR improved balance, postural stability, and fine and gross motor skills (McDaniel Peters & Wood, 2017). In a study of older adults with balance deficits, participants' balance improved following an eight-week TR program, and these improvements endured at the

two-month post-intervention follow-up assessment (Homnick et al., 2013). TR has also been indicated to improve strength and balance in older adults and to reduce stress hormone secretion (White-Lewis et al., 2019). The existing literature on TR as a recreational occupation for diverse populations indicates that it can provide benefits in several dimensions of QoL across individuals. However, the current research is limited in applicability for TR centers and CTRIs interested in measuring outcomes of their services because of methodological variability and inaccessible outcome assessments, discussed next.

Assessments Currently Used to Measure Participant Outcomes of Therapeutic Riding in Research Contexts

To communicate the benefits of TR to participants, family members, the community, and other stakeholders, CTRIs and TR centers may measure participant outcomes of TR services using standardized assessments. For the purpose of this thesis, a standardized assessment is operationally defined as a published assessment tool that is available to the public for use (sometimes for a fee). In general, a good assessment of any kind must be reliable, valid, and clinically useful. Reliable assessments are those which are consistent, either across time (test-retest reliability), within the assessment (internal consistency), or between administrators (inter-rate reliability) (Hunsley & Mash, 2007). There are several different types of validity (i.e. content, face, predictive, discriminative, etc.), but generally speaking an assessment is valid if it actually measures what it claims to measure. Finally, clinical usefulness is defined as whether an assessment is feasible to implement, acceptable to administrators and participants, can improve the quality of interventions or treatments, and is worth the cost of its use.

In research on the benefits of TR, scientists use assessments to measure and report the outcomes of TR participation. These assessments, however, may not be accessible to CTRIs,

who do not have the same credentialling or context as scientific researchers. Table 1 lists many of the assessments used in TR research and their associated time, credentialing, and cost requirements and psychometric properties. Many assessments used in research require administrators to have advanced degrees, such as master's or doctoral degrees, which limits the use of these assessments among CTRIs and at TR centers (Pearson Assessments, 2020). Additionally, some assessments used in research have been developed or adapted by scientists for their specific research purposes and are not available for public use (Farias-Tomaszewski et al., 2001; Fields et al., 2018). Many of the assessments used in research are costly and may not be sustainable for long-term use in the TR barn context, as TR funding is typically dependent on grants and donations and may not be consistent (Bass et al., 2009; Farias-Tomaszewski et al., 2001; Gabriels et al., 2015). Finally, much of the data collected in TR-related research studies, while valuable, is not relevant to key TR stakeholders. CTRIs and TR centers may desire to communicate the broad benefits of TR participation to the diverse populations served in community-based TR, rather than the focused or population-specific outcomes that scientific researchers measure (e.g., Bass et al., 2009; Farias-Tomaszewski et al., 2001; Gabriels et al., 2015; T. D. Homnick et al., 2015a; Johnson et al., 2018).

Table 1. Requirements and psychometric properties of assessments used in TR-related research.

Citation	Assessment Name	Credentialing Requirements	Time Requirements	Cost to Purchase	Cost per Use	Evidence of Validity?	Evidence of Reliability?
(Bass et al., 2009)	Social Responsiveness Scale (SRS)	Bachelor's degree in psychology (or related field) and additional training OR master's degree	15 – 20 min	$224.00 (online kit) $247.00 (hand-scored kit)	$2.68	Yes (Constantino, 2013)	Yes (Constantino, 2013)
(Bass et al., 2009)	Sensory Profile	Master's degree in psychology or related field (e.g., education, speech language pathology, occupational therapy, etc.)	5 – 20 min	$314.30	$2.30	Yes (Pearson Assessments, 2019)	Yes (Pearson Assessments, 2019)
(Farias-Tomaszewski et al., 2001)	Self-Efficacy Scale	None reported	Short – 23-item questionnaire	Free	Free	Yes (Sherer et al., 1982)	Yes (Sherer et al., 1982)
(Farias-Tomaszewski et al., 2003)	The Physical Self-Efficacy Scale	None reported	Short – 22-item questionnaire	Free	Free	Yes (Ryckman et al., 1982)	Yes (Ryckman et al., 1982)
(Farias-Tomaszewski et al., 2003)	The Behavioral Rating Scale – developed by study authors	None reported	Behavioral coding throughout TR sessions	Unavailable for public use	Unavailable for public use	No, developed by study	No, developed by study researchers

						researchers	
(Fields et al., 2018)	Modified Activity in Context and Time	None reported – researcher-adapted measure	Throughout TR Sessions	Free but unavailable to TR professionals	Unavailable for public use	Yes (Wood, 2005)	Yes (Wood, 2005)
(Gabriels et al., 2015)	Peabody Picture Vocabulary Test, Fourth Edition	Master's degree in psychology or related field (e.g., education, speech language pathology, occupational therapy, etc.)	10 – 15 minutes	$279.90 - > $900.00, depending on kit	$3.25	Yes (Pearson, 2019)	Yes (Pearson, 2019)
(Gabriels et al., 2015)	Systematic Analysis of Language Transcripts (SALT)	Not reported; however, typically used by speech language pathologists and researchers	5 minutes	$209.00 for clinical license		Yes (Miller et al., 2015)	Yes (Miller et al., 2015)
(Gabriels et al., 2015)	Bruininks-Oseretsky Test of Motor Proficiency (BOT-2)	Master's degree in psychology or related field (e.g., education, speech language pathology, occupational therapy, etc.)	Short form: 15 – 20 minutes	$687.00 – >$1,000.00	$1.40	Yes (Gharaei et al., 2019)	Yes (Gharaei et al., 2019)
(Gabriels et al., 2015)	Sensory Integration and Praxis Tests	Bachelor's degree in psychology (or related field) and	20 minutes (10 minutes	$1,571.00	$8.20	Yes (Lai et al., 1996)	Yes (Asher et al., 2008)

	(SIPT): Praxis on Verbal Command and Postural Praxis	additional training OR master's degree	for each subsection)				
(Gabriels et al., 2015)	Vineland Adaptive Behavioral Scales – 2nd Edition, Survey Interview Form (VABS-II): Adaptive behavior evaluation	Master's degree in psychology or related field (e.g., education, speech language pathology, occupational therapy, etc.)	Interview form – variable time depending on reporting during interview	$415.00 - >$1,000.00	$4.00	Yes (Kramer et al., 2016)	Yes (Kramer et al., 2016)
(Gabriels et al., 2015)	Aberrant Behavior Checklist (ABC-C)	No necessary qualifications except "knowledge of the person being assessed."	10 – 15 minutes	$159.75 - $198.75	$2.15	Yes (Aman et al., 1985)	Yes (Aman et al., 1985)
(Homnick et al., 2013)	Fullerton Advanced Balance Scale (FABS)	No qualifications noted; however, appears that administrators are typically physical or occupational therapists or neurologists.	10 – 12 minutes	Free	Free	Yes (Rose et al., 2006)	Yes (Rose et al., 2006)
(Johnson et al., 2018)	PTSD Checklist-Military (PCL-M)	Psychological clinician	5 – 10 minutes	Free	Free	Yes (Wilkins et al., 2011)	Yes (Wilkins et al., 2011)

(Johnson et al., 2018)	Coping Self-Efficacy Scale (CSES)	None reported	5 – 10 minutes	Free	Free	Yes (Chesney et al., 2006)	Yes (Chesney et al., 2006)
(Johnson et al., 2018)	Difficulties in Emotion Regulation Scale (DERS)	None reported	5 – 10 minutes	Free	Free	Yes (Hallion et al., 2018)	Yes (Hallion et al., 2018)
(Johnson et al., 2018)	Social and Emotional Loneliness Scale (SELS)	None reported	5 – 10 minutes	Free	Free	Yes (DiTommaso & Spinner, 1993)	Yes (DiTommaso & Spinner, 1993)
(Ward et al., 2013)	Gilliam Autism Rating Scale-2 (GARS-2) • GARS-3 is updated version	No specific qualifications listed; however, the rater should be trained in the assessment and have knowledge of the child.	5 – 10 minutes	$185	$1.34	Yes (*Multi-Health-Systems-Usd*, n.d.)	Yes (*Multi-Health-Systems-Usd*, n.d.)
(White-Lewis et al., 2019)	Active and Passive Range of Motion Measures	Training in using a goniometer	30 minutes	$9.99 to purchase a goniometer	Free	Yes (Fieseler et al., 2015)	Yes (Nussbaumer et al., 2010)
(White-Lewis et al., 2019)	1 – 100 mm Visual Analog Scale (VAS)	None reported	Very brief, < 1 minute	Free	Free	Yes (Downie et al., 1978)	Yes (Ferraz et al., 1990)

(White-Lewis et al., 2019)	Arthritis Impact Measurement Scale (AIMS 2)	None required	20 – 30 minutes	Free	Free	Yes (Meenan et al., 1992)	Yes (Meenan et al., 1992)

Community-Academic Partnership

The current study results from a community-academic partnership between PATH, Intl. and the TGEC at CSU. PATH Intl. is a non-profit organization which "lead[s] the advancement of professional equine-assisted services by supporting…rigorously developed standards, credentialing and education"(*Therapeutic Horsemanship | Professional Certifications | PATH Intl*, n.d.). PATH Intl. promotes access to TR for diverse populations, promoting education, innovation, and service in this field. For this study, the team at the TGEC recognized a need to identify assessments that could be implemented by CTRIs to measure the impact of TR on the clients at their own center and across the industry. TGEC approached PATH, Intl and proposed a partnership to address these problems; PATH, Intl agreed that measuring participant outcomes of community-based TR was also a priority for them, and the community-academic partnership between TGEC and PATH, Intl was born. Therefore, this research is being conducted in the context of a community-academic partnership where TGEC and PATH, Intl are partnering to together address the need for outcome assessments to measure the impact of TR services on participants.

Need, Purpose, & Research Questions

The long-term goal of this research program is to identify reliable, valid, and clinically useful assessments to measure participant outcomes of TR at PATH, Intl. centers. To achieve this goal, there is a need to better understand what would make an assessment clinically useful to CTRIs and TR centers. Therefore, the purpose of this study is to gather feedback from CTRIs and PATH, Intl. program leaders, about what would make a TR outcome assessment clinically useful. Therefore, I asked the following research questions:

1. How are CTRIs currently measuring participant outcomes, if at all?

2. Do TR stakeholders believe it is important to identify outcome assessments for measuring TR participant outcomes? If so, what participant outcomes do TR stakeholders believe are most important to assess and most likely to change?

3. What do TR stakeholders believe would be benefits of and barriers to implementing outcome assessments among TR participants?

4. What qualities of outcome assessments would be most clinically useful in the community-based TR setting (e.g., for what populations is the assessment validated, frequency of assessment, length of assessment, cost of assessment, etc.)?

CHAPTER 2: MANUSCRIPT

Introduction

Therapeutic Riding (TR), or adaptive riding, is a recreational activity in which horseback riding is adapted to the needs of individual participants with diverse abilities and diagnoses (Wood et al., 2020). TR typically occurs in a group setting, with a certified therapeutic riding instructor (CTRI) teaching skills that address horsemanship goals, allowing diverse populations to access the natural benefits of horsemanship (Wood et al., 2020). TR provides an engaging opportunity for physical activity among people with diverse disabilities, including youth with autism spectrum disorder (ASD) and cerebral palsy, veterans with post-traumatic stress disorder (PTSD), and older adults with dementia and other diagnoses (Bass et al., 2009; Farias-Tomaszewski et al., 2001; Fields et al., 2018; Johnson et al., 2018; Whalen & Case-Smith, 2012) Furthermore, TR has been proposed to improve a variety of outcomes, including: self-confidence, motivation, courage, social involvement, self-perceived physical competency, and gross motor function (Bass et al., 2009; Farias-Tomaszewski et al., 2001; Fields et al., 2018; Johnson et al., 2018; Whalen & Case-Smith, 2012).

Many researchers have identified broad benefits of participating in TR; however, CTRIs and TR centers are limited in their capacity to gather and report the benefits of the services they provide at their centers. The assessments often used in TR research may not be accessible to CTRIs at community-based TR centers, who provide services in a different context than a research setting. For example, many assessments used in research require administrators to have advanced degrees, such as master's or doctoral degrees (Pearson Assessments, 2020). The minimum qualifications to become a CTRI include being at least 18 years of age and maintaining CPR certification; therefore, most CTRIs are likely under-credentialed for the assessments used

in research. Additionally, some research-based assessments have been developed or adapted by scientists for their specific research purposes and are validated for only one population (e.g., youth with autism, veterans, etc; Farias-Tomaszewski et al., 2001; Fields et al., 2018; Gabriels et al., 2015; Johnson et al., 2018)). CTRIs and TR centers often serve many different populations concurrently, and therefore use assessments relevant to diverse populations. Finally, many of the assessments used in research are costly and may not be sustainable for long-term use in the TR barn context (Bass et al., 2009; Farias-Tomaszewski et al., 2001; Gabriels et al., 2015). Due to the stated limitations, TR professionals currently do not have clinically useful standardized assessments which can feasibly be implemented in their barns. Therefore, there is a need to identify high-quality outcome assessments which TR professionals can implement to communicate the benefits of their community-based services to participants, funders, and the community.

Given the limitations of assessments used in TR research, a key consideration when identifying high-quality assessments to measure participant outcomes is the *clinical usefulness* of the assessment (Hunsley & Mash, 2007). Clinical usefulness is defined as whether an assessment improves the quality of services, is acceptable to administrators and participants, can improve the quality of services, and is worth the cost of its use. Clinical usefulness is particularly important for TR professionals, as they often serve diverse populations with varying needs and abilities and are constrained by the limited time they spend with their participants, limited financial resources, and credentialing restrictions.

The purpose of the current study is to gather feedback from TR stakeholders pertaining to elements of standardized assessments which make them *clinically useful* to measure participant

outcomes of community-based TR. To achieve this aim, we asked the following research questions:

1. How are CTRIs currently measuring participant outcomes, if at all?
2. Do TR stakeholders believe it is important to identify an outcome assessment for measuring participant outcomes of TR? If so, what participant outcomes do TR stakeholders believe are most important to assess and most likely to change?
3. What do TR stakeholders believe would be benefits of, and barriers to, implementing standardized assessments to measure participant outcomes of TR?
4. What qualities of outcome assessments would be most clinically useful in the community-based TR setting (e.g., for what populations is the assessment validated, frequency of assessment, length of assessment, cost of assessment, etc.)?

Methods

As part of this project, the Temple Grandin Equine Center (TGEC) at Colorado State University, and the Professional Association of Therapeutic Horsemanship, International (PATH, Intl.) formed a working group of TR stakeholders that had been meeting for 6 months at the time of this study. The TGEC is an initiative developed by the university to integrate research and education in equine-assisted services with the purpose of bettering both horses and humans where "individuals with special challenges heal, therapists treat, instructors teach and students learn, scientists research, and horses are studied, cared for, and advanced" (*Temple Grandin Equine Center | CSU Spur at the NWC*, n.d.). PATH, Intl. is a non-profit organization which "leads the advancement of professional equine-assisted services by supporting…members and stakeholders through rigorously developed standards, credentialing, and education" (*PATH Intl.*

Registered Riding Instructor Certification Booklet, n.d.). Members of this ongoing working group include TGEC leadership, the CEO and several staff from PATH, Intl., CTRIs, leadership from PATH, Intl. centers, and researchers interested in TR. The working group has provided feedback that greatly influenced the methods presented below.

Study Design and Participants

This research study was conducted via an electronic survey, which was approved by the CSU institutional review board and distributed to the population of interest. Participants included key TR stakeholders, including CTRIs, center leadership, volunteers, and TR participants and caregivers. To be included, participants were required to be age 18 or older, be a previously identified stakeholder, and must have completed at least 50% of the survey.

Data Collection

The survey was created in Research Electronic Data Capture (REDCap), a secure, confidential, web-based software platform designed to support data capture for research studies (Harris et al., 2009, 2019). Only approved individuals on the research team had access to the survey and results. Survey details are in the supplemental materials; however, they will be summarized here. The survey was distributed to a national mailing list of TR stakeholders maintained by PATH, Intl. on March 1, 2022 and was open for eight weeks until April 26th. Respondents first identified their relationship to TR (e.g., whether they were TR instructors, PATH, Intl. center leadership, TR participants, caregivers, or "other") and whether they were over the age of 18 years old. The survey then followed a branched-logic format, with subsequent questions based on responses to preceding questions. Generally, survey questions fell into 5 categories: 1) general information about the respondent; 2) if and how the respondent currently measures TR outcomes (for CTRIs and PATH., Intl leadership only): 3) the perceived

importance and likelihood to change of possible participant outcome areas (e.g., horsemanship skills, social skills, physical improvements); 4) benefits of and barriers to implementing standardized outcome assessments in community-based TR; and 5) considerations that may affect the clinical usefulness of outcome assessments (e.g., time, cost, assessment method, etc.).

The survey consisted of Likert-scale questions (e.g., "How important is it to you to identify an outcome assessment that can measure the effect of therapeutic riding?"), "Select all that apply" questions (e.g., "Please choose which options describe you best"), "Yes or No" questions (e.g., "Do you currently charge your participants for…initial intake assessment[s]?"), and open-ended short-answer questions (e.g., "Please describe," or "Please list…").

Data Analysis

Survey data were exported from REDCap and downloaded to an Excel workbook for analysis. Once imported into Microsoft Excel, descriptive statistics such as means, frequencies, and percentages were calculated. For "Select all that apply" questions, total percentages across all response options summed greater than 100%, as respondents were allowed to select multiple responses. For short-answer questions, we category-coded responses into pre-existing answer options or created new codes derived from participant answers; we report category counts to summarize the short-answer responses (Hsieh & Shannon, 2005).

Results

Participant Characteristics

Three hundred forty-seven total respondents completed portions of the survey before it closed on April 26th, 2022. Two hundred seventy-seven participants completed at least 50% of the survey, finishing the question which asked the respondents to report which participant outcomes are most important to assess. Respondents who did not complete at least 50% of the

survey were not included in further analyses. Two hundred sixteen (78%) respondents identified as therapeutic riding instructors, 99 (36%) identified as PATH, Intl. Center staff, 23 (8%) identified as TR volunteers, and 8 (3%) identified as either a TR participant or a caregiver of a TR participant. Due to the dearth of non-CTRI or staff respondents, we chose to focus further analyses on respondents who identified as either CTRIs or PATH, Intl. center staff. A total of 233 CTRIs or PATH, Intl. center staff completed the survey to the 50% point, and 221 completed the survey in its entirety.

Of the 216 respondents who identified as therapeutic riding instructors, 200 (93%) identified as Certified Therapeutic Riding Instructors; 27 (13%) identified as Advanced Therapeutic Riding Instructors, and 11 (5%) identified as Master Therapeutic Riding Instructors. These instructor types were combined for further analysis and will be hereafter identified as CTRIs. One hundred forty-one (65%) respondents reported being employed at a PATH, Intl. TR center, 37 (17%) reported working at non-PATH, Intl. center, 22 (10%) reported being a contractor with PATH, Intl. centers, and 22 (10%) reported currently not working with a TR center.

Current Assessments

One hundred and ninety-one respondents (82%) reported that they currently measure participant outcomes of TR. Table 2 includes outcome areas currently assessed by survey respondents.

Table 2. TR outcomes currently assessed by TR centers/staff.

Current Outcomes Assessed	Number of Responses (%) n = 191
Horsemanship skills	178 (93%)
Cognitive skills	155 (81%)
Communication skills	150 (79%)
Physical outcomes	140 (73%)
Emotional regulation	125 (65%)
Social outcomes	122 (64%)
Self-efficacy outcomes	110 (58%)
Recreation/leisure outcomes	105 (55%)
Empathy outcomes	89 (47%)
Quality of life outcomes	84 (44%)
Activities of daily living outcomes	45 (24%)
Community integration	38 (20%)
Instrumental activities of daily living outcomes	27 (14%)
Other	8 (4%)

Among the 191 survey respondents who reported tracking participant outcomes, respondents reported using several outcome-tracking methods, including progress notes (n = 178, 93%), interviews (n = 78, 41%), unstandardized assessments (n = 71, 37%), standardized assessments (n = 24, 13%), and "other" (n = 17, 9%). Of those who use standardized assessments, respondents reported spending an average of 26.7 minutes (SD = 28.4) implementing standardized assessments and an average of 23.4 minutes (SD = 28.4 minutes) implementing unstandardized assessments. Regarding unstandardized assessments, respondents identified utilizing participant and caregiver surveys (n = 18, 25%), "in-house" assessments created by TR centers (n = 9, 13%), modified standardized assessments (i.e., modified RDA tracker, modified RIDES assessment, n = 2, 2.5%), and surveys completed by TR instructors (n

= 1, 1.4%). Standardized assessments included goal attainment scaling (GAS; n = 9, 38%), the Rider Instruction, Development, and Evaluation System (R.I.D.E.S., n = 3, 13%), Pediatric Evaluation of Disability Inventory-Computer Adaptive Test (PEDI-CAT, n = 2, 8%), the Strengths and Difficulties questionnaires (n = 2, 8%), Naples Assessment Tool (n = 1, 4%), the PTSD Checklist (n = 1, 4%), Patient Health Questionnaire (PHQ9, n = 1, 4%), Quality of Life Enjoyment and Satisfaction Questionnaire-Short Form (QLES-Q-SF, n = 1, 4%), Military to Civilian Questionnaire (M2C-Q, n = 1, 4%), Insomnia Severity Index (ISI, n = 1, 4%), the Recreation Therapy Assessment (n = 1, 4%), and one respondent stated that they use a standardized measure but did not report what standardized measure they use (n = 1, 4%). Overall, there were a variety of implemented standardized assessments that measured diverse health or wellbeing constructs.

Respondents who currently assess TR participant outcomes reported measuring outcomes for various reasons, including the following:

- Tracking participant progress (n = 183, 96%),
- Program evaluation (n = 108, 57%),
- Acquiring funding (n = 101, 53%),
- Program support (e.g., reports to board or participants, n = 100, 52%),
- "Other" (n = 16, 8%), and r
- Research (n = 12, 6%).

Table 3 reports the frequency with which respondents reported implementing TR outcome assessments.

Table 3. Reported frequency of assessing participant outcomes of TR. A TR session is defined as the period of consecutive weeks or months during which TR lessons are provided. A TR lesson is defined as one TR meeting during which TR instruction is provided.

Assessment Frequency	**Unstandardized Assessments (n = 71)**	**Standardized Assessments (n = 24)**
Before/After Sessions	42	17
After Lessons	23	4
Other	8	3
Annually	7	1
Biannually	5	3
Quarterly	2	1
Before/After Lessons	1	3

Importance of Identifying a Standardized Outcome Assessment

Figure 1 illustrates the extent to which CTRIs and PATH, Intl. staff believed it is important to identify a standardized assessment to measure effects of TR. While a substantial minority (29%) found is unimportant or very unimportant, the majority of respondents (64%)

reported it was important or very important.

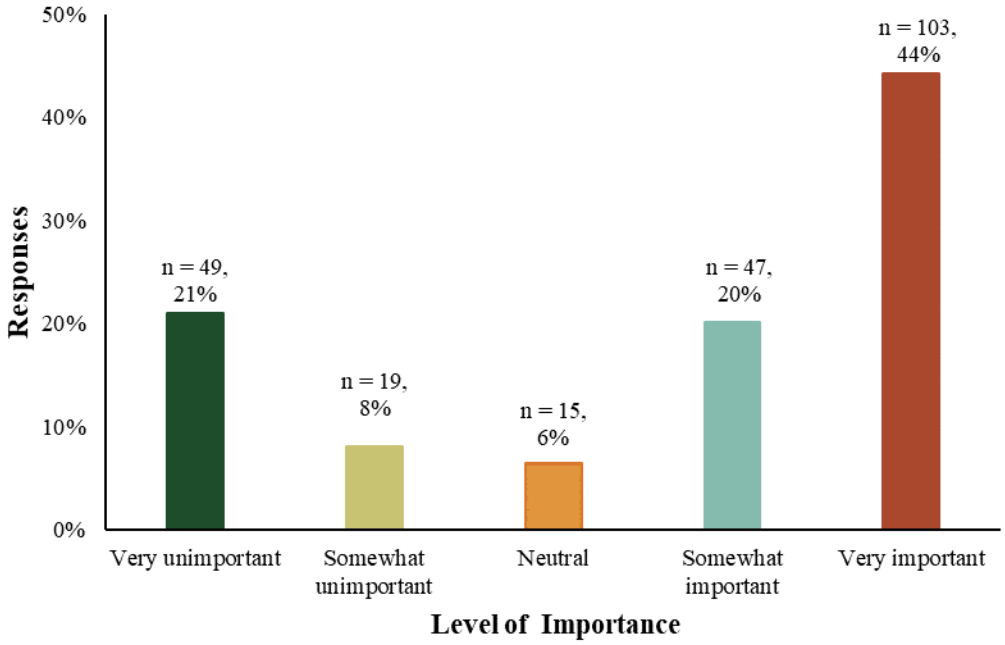

Figure 1. Reported importance of identifying an outcome assessment to measure outcomes for participants in TR.

Figure 2 illustrates population characteristics (i.e., ages, diagnoses, life experiences) which survey respondents believed would be important to measure in TR participants. Over 90% of respondents reported that it would be important to measure TR outcomes in all ages and diagnosis groups.

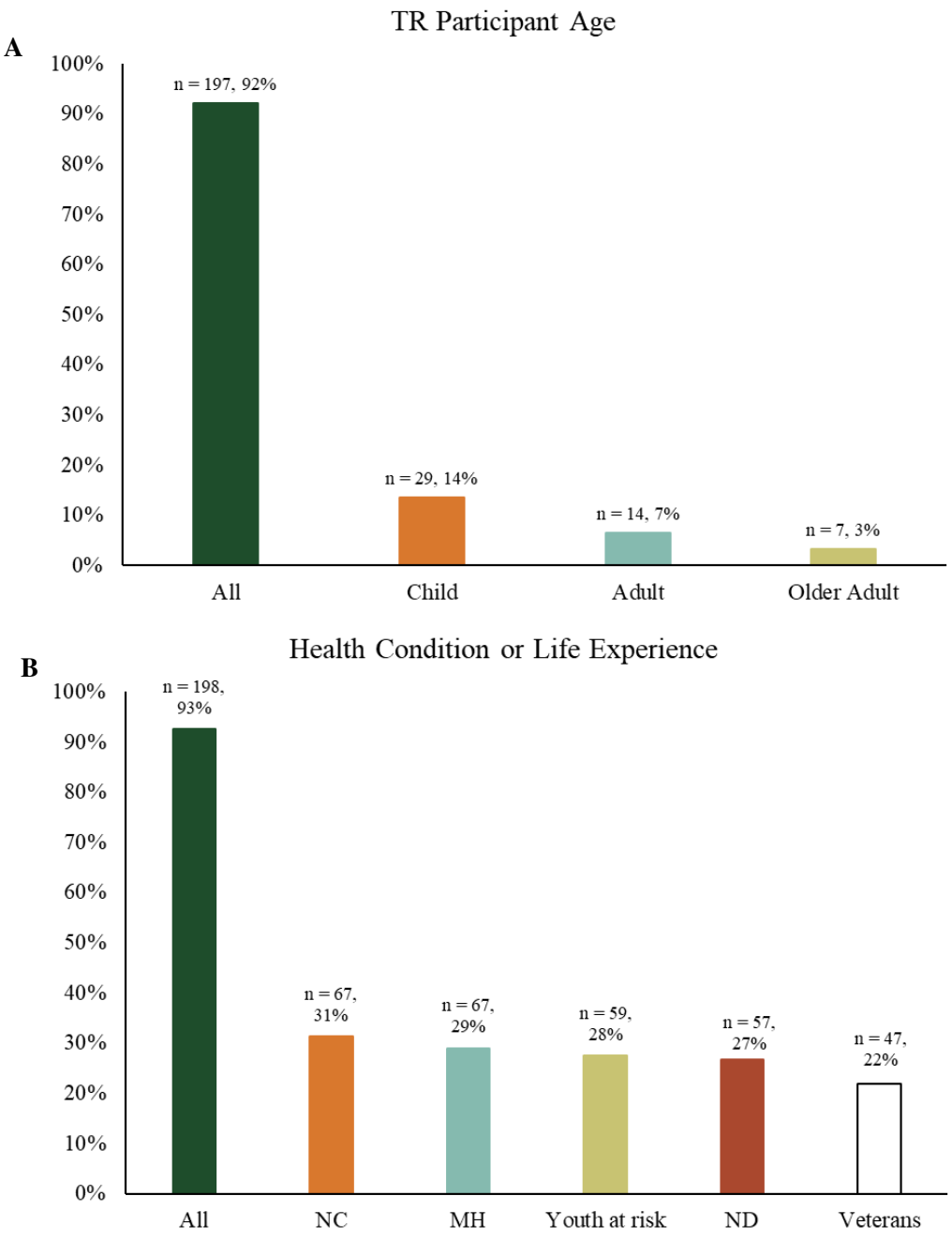

Figure 2. ***A)*** *Ages identified as important to measure TR outcomes and* ***B)*** *populations identified as important to measure TR outcomes. NC = neurodevelopmental conditions, MH = mental health conditions, ND = neurological disorders.*

Table 4 illustrates respondents' perception of the importance and likelihood to change of several different potential participant TR outcomes. We combined the "Very unimportant" and "Unimportant" responses for this analysis.

Table 4. Reported outcome importance and likelihood to improve.

	Importance			Likelihood to Improve		
Outcome	**Very unimportant/ Unimportant**	**Neutral**	**Important/Very important**	**Very unlikely/ Unlikely**	**Neutral**	**Likely/Very likely**
Physical outcomes	8 (3%)	10 (4%)	215 (93%)	3 (1%)	19 (8%)	202 (89%)
Cognitive outcomes	6 (3%)	14 (6%)	213 (91%)	0 (0%)	13 (6%)	210 (92%)
Communication outcomes	5 (2%)	15 (6%)	213 (91%)	0 (0%)	19 (8%)	206 (91%)
Emotion regulation	9 (4%)	11 (5%)	213 (91%)	2 (1%)	14 (6%)	207 (91%)
Quality of life outcomes	5 (2%)	18 (8%)	210 (90%)	3 (1%)	27 (12%)	193 (85%)
Self-efficacy outcomes	9 (4%)	15 (6%)	209 (89%)	1 (0.44%)	22 (10%)	202 (89%)
Social outcomes	10 (4%)	16 (7%)	207 (89%)	5 (2%)	28 (13%)	190 (84%)
Recreation/leisure outcomes	8 (3%)	21 (9%)	204 (87%)	3 (1%)	31 (14%)	190 (84%)
Empathy outcomes	7 (3%)	28 (12%)	198 (85%)	1 (0.44%)	5 (2%)	219 (95%)
Horsemanship skills	6 (3%)	32 (14%)	195 (84%)	1 (0.45%)	27 (12%)	195 (85%)
Daily living activities	33 (14%)	74 (32%)	126 (54%)	17 (8%)	122 (54%)	86 (38%)
Community integration	34 (15%)	75 (32%)	124 (53%)	17 (8%)	116 (52%)	92 (41%)
Instrumental ADL outcomes	28 (12%)	92 (39%)	113 (49%)	22 (10%)	141 (63%)	60 (26%)

Twenty-six survey respondents reported 'other'outcomes which they believed were important or likely to change. Their responses were coded into the following categories: outcome importance depends on individual goals and abilities (n = 4, 15%), sensory integration (n = 2, 8%), relationship building (in a family or between peers; n = 2, 8%), academic performance (n = 2, 8%), connection with the horse (n = 4, 15%), self-confidence and leadership skills (n = 2, 8%), and improved self-regulation (n = 3, 12%).

Benefits of and Barriers to Implementing Standardized Outcome Assessments

Respondents reported several benefits of identifying an assessment to measure TR outcomes, including gathering data to demonstrate the value of TR to society (n = 197, 85%), communicating outcomes to potential TR funders (n = 183, 79%), communicating outcomes to participants (n = 176, 76%), communicating outcomes to future participants (n = 172, 74%), guiding how TR is delivered or implemented (n = 146, 63%), other (n = 22, 9%), and none (n = 3, 1%). The "Other" responses fell into several categories, including communication with other professionals (n = 3, 14%), to advocate for insurance coverage/funding (n = 7, 32%), instructor benefit (n = 4, 18%), research (n = 3, 14%), and increasing the credibility of the TR profession (n = 2, 9%).

Respondents also identified several potential obstacles to implementing standardized assessments at their TR centers, including time constraints (n = 152, 65%), lack of a system to organize assessments (n = 149, 64%), lack of expertise in standardized assessments (n = 137, 59%), lack of staff to implement assessments (n = 118, 51%), assessment cost (n = 94, 40%), participant buy-in for assessments (n = 59, 25%), lack of knowledge about which assessments to implement (n = 48, 12%), other (n = 26, 11%), and none (n = 12, 5%). Of the respondents who selected "Other," their responses were coded into the following categories: diversity of PATH,

Intl. centers and services provided (n = 7, 27%), individual participant variability (e.g., ages, diagnoses, contexts, cultural considerations; n = 7, 27%), participant/family burden (n = 3, 12%), increased focus on assessment results rather than providing high-quality services (n = 2, 8%), and variability inherent to community-based TR (e.g., changes in volunteers/horses, participant absences (n = 1, 4%).

Given the perceived benefits of and barriers to implementing outcome assessments, respondents were asked to report how likely they would be to use standardized outcome assessments if they were recommended by PATH, Intl. Three percent (n = 7) of respondents reported that they were very unlikely to implement standardized outcome assessments; 12% (n = 28) of respondents reported that they were unlikely to implement outcome assessments; 46% (n = 108) reported that they were likely to implement outcome assessments, and 39% (n = 90) reported that they would be very likely to implement outcome assessments.

Clinical Usefulness of Implementing TR Outcome Assessments

Survey respondents reported that their shortest sessions lasted on average 7.2 weeks (SD = 2.88) and that their longest sessions lasted on average for 11.92 weeks (SD = 6.42). Session durations ranged from one week to one year, with some respondents noting that their TR participants remain within their programs for multiple years. The majority of survey respondents (n = 178, 76%) reported that CTRIs would be the best individuals to report TR participant outcomes, followed by TR participant caregivers (n = 134, 58%), TR participants (n = 118, 51%), and "other" (n = 31, 13%). Respondents indicated that they would be willing for CTRIs to complete assessments that require a median length of 20 minutes (range = 0 - 60 minutes) and that they would feel comfortable asking TR participants to complete assessments lasting a median length of 20 minutes (range = 0 - 60 minutes). Additionally, of the 221 total survey

respondents, 97 respondents (44%) indicated that they would prefer assessments via a computer/iPad, 94 respondents (43%) identified that they would implement assessments in either computer/iPad or pencil/paper format, and 30 respondents (14%) stated that they would prefer pencil/paper assessments. Finally, the majority of respondents identified that that they would only use assessments that are either free (n = 106, 48%) or cost $1-2 per use (n = 79, 36%). Fewer respondents stated that they would use assessments costing $3-5 per use (n = 33, 15%) $6-10 per use (n = 3, 1.4%).

Discussion

The current study gathered feedback from CTRIs and PATH, Intl center leadership pertaining to elements of *clinical usefulness* of standardized assessments to measure participant outcomes of community-based TR. As further discussed below, results substantiated there is an existing need across the TR industry to identify standardized assessments that can be used for this purpose and elucidated qualities of standardized assessments that would be clinically useful in the community-based TR setting.

Substantiating the Need for Standardized Assessments in the TR Industry

The vast majority of respondents reported currently measuring participant outcomes of TR participation, primarily through progress notes, interviews, or un-standardized assessments. While these commonly-reported methods of recording participant information may be useful to track progress or communicate about participants within centers, they may limit the center's capacity to report across centers, between professionals, and to the public. Other programs which provide recreation access to marginalized populations, such as Outward Bound, have developed standardized tools and programs through which they assess and improve their programs (Dalbey & Fish, n.d.). Outward Bound has developed two assessments which measure several "key

social-emotional skills" which their programs aim to enhance and which allow for regional Outward Bound programs to collect consistent data on how students are impacted by their programs, respectively. Easterseals, another organization which provides recreation access to disabled individuals, implements the Social Determinants of Health (SDOH) assessment, which include economic stability, education access and quality, health care access and quality, neighborhood and built environment, and social and community context, to support their programs and assess outcomes for their participants (*Easterseals | Our Services*, n.d.). Among these community-based programs, standardized assessments offer a standard method to measure participant outcomes and allow for communication between centers, professionals, and the public.

In the current study, despite a notable minority of respondents who did not think it was important (29%), the majority of respondents (64%) reported that it is important to identify standardized assessments to measure outcomes of TR participation. This is in contrast to research on credentialled professionals, occupational therapists, who report that implementing standardized assessments where appropriate is important (Piernik-Yoder & Beck, 2012). The rationale for those respondents who reported that it is "not important" to identify a standardized outcome assessment is not clear, as respondents did not have the opportunity to describe why they selected their answers. Additionally, other authors have reported that community-based service providers feel that standardized assessments may not reflect the unique characteristics of their community, programs, and the skills and resources of their participants (Judd et al., 2001). Furthermore, there is a lack of education about standardized assessments in CTRI training materials (*PATH Intl. Registered Riding Instructor Certification Booklet*, n.d.); therefore, the "unimportant" responses *may* result from a lack of knowledge about standardized assessments.

Additionally, while many respondents reported that it is unimportant to identify standardized assessments for TR, the majority of respondents stated they would be either likely or very likely to implement standardized assessments recommended by PATH, Intl. If standardized assessments were available and recommended for TR professionals, they would be likely to use them. However, the lack of standardized assessment availability is indicated by the fact that only 13% of respondents reported currently using standardized assessments. Therefore, this study substantiated that there is currently an unmet need to identify standardized assessments to measure participant outcomes of community-based TR.

Current Assessments

The current survey collected information from the few respondents who are using standardized assessments, which may provide helpful insights for the next phase of this program of research focused on identifying assessments. The most frequently-reported standardized assessments measure improvements in *horsemanship skills*. The Therapeutic Riding Assessment Impact Network (TRAIN) (*About - High Hopes Therapeutic Riding*, n.d.; Turner-Stoke, 2009) designed a TR-specific goal-attainment scaling process that was implemented by 9 respondents; this process involves the development and rating of goals to objectively measure changes in horsemanship skills as a result of participating in TR. The next most prevalent standardized assessment, the RIDES tool, was developed by a TR program based out of Nashville, TN to assess TR participant horsemanship skills, develop goals, and track goal progress (*RIDES: Rider Instruction, Development and Evaluation System*, n.d.). Like the assessments developed by Outward Bound, both the TRAIN and RIDES assessments were created to measure outcomes relevant to TR (Dalbey & Fish, n.d.). Unlike the Outward Bound assessments, however, the TRAIN and RIDES assessments measure only horsemanship skills, not the broad benefits in

participants' everyday lives outside of the recreational context. Despite this limitation, the RIDES and TRAIN assessments could be a valuable resource for CTRIs or centers interested in measuring improved horsemanship skills, though they are limited in their applicability to other outcomes.

There was much less consensus among survey respondents regarding standardized assessments currently used to measure health or wellbeing outcomes of TR outside the barn context. This reflects the diverse goals set by TR participants and professionals and the myriad of benefits which engaging with TR provides. However, it also highlights the difficulty of communicating TR outcomes to relevant stakeholders and further substantiates the need to identify standardized assessments that can be used across several diverse PATH, Intl centers. Additionally, assessments created for other community-focused programs have been developed based on the benefits those programs are aimed to provide, such as socio-emotional skills. Because diverse TR facilities may have different goals, any outcome assessment recommended by PATH, Intl. should be broad enough to encompass areas addressed in different organizations (Dalbey & Fish, n.d.; *Easterseals | Our Services*, n.d.).

Benefits of and Barriers to Implementing Standardized Outcome Assessments

The benefits of implementing standardized TR assessments reported by survey respondents mirror national trends for program development and evaluation. In recent decades, there has been a national emphasis on evidence-based policies and programs, including community-based programs. Program funders, such as policymakers and funding agency leaders, often require programs to demonstrate their efficacy through research or program evaluation (Mccall, 2009). Additionally, for programs to receive national attention and support, they must be evaluated at regular intervals (Groark & McCall, 2009). One such method of program

evaluation is using standardized assessments to measure the outcomes which programs claim to address among participants. Standardized assessments are used to measure whether participants are eligible for programs/services, to ensure high quality intervention, and to communicate with internal and external stakeholders. This aligns with respondents' perceived benefits of using standardized assessments in the current survey, which included demonstrating the value of TR, communicating with funders and other professionals, advocating for insurance coverage and funding, and bolstering the TR profession's credibility. These responses are similar to benefits of standardized assessments reported in other professions (Hatfield & Ogles, 2004; Jette et al., 2009; Piernik-Yoder & Beck, 2012). These responses continue to underscore the challenges which TR professionals face in communicating the value of their services. The TR profession has an opportunity to strengthen its national credibility by implementing evidence-based, standardized assessments which effectively communicate the broad benefits of TR participation.

Despite these potential benefits, there are significant barriers to TR programs implementing standardized assessments. TR programs are not required to implement standardized measures, and training for CTRIs does not include education about standardized outcome assessments (*PATH Intl. Registered Riding Instructor Certification Booklet*, n.d.). The PATH. Intl course which potential CTRIs are required to take includes a section on participant evaluation and progress notes, but it does not entail education on implementing standardized outcome assessments to track participant progress, measure program effectiveness, or plan interventions. Most barriers identified by survey respondents reflect their concern over the clinical usefulness of standardized assessments, including the time, financial, and systemic restraints inherent in TR practice. Other professionals have reported similar barriers to those identified by survey respondents, including time, client burden, and a lack of resources (Hatfield

& Ogles, 2004; Jette et al., 2009; Piernik-Yoder & Beck, 2012). These reported barriers should be considered when identifying potentially useful assessments to implement in TR settings.

Clinical Usefulness of Standardized Outcome Assessments

Given the barriers to using standardized assessments discussed above, it is critical that standardized assessments identified to measure participant outcomes of community-based TR are *clinically useful* in the TR context. Clinical usefulness is defined as whether an assessment improves the quality of services, is acceptable to administrators and participants, can improve the quality of services, and is worth the cost of its use (Hunsley & Mash, 2007). Clinical usefulness is particularly important for TR professionals, as they often serve diverse populations with varying needs and abilities and are constrained by the limited time they spend with their participants, limited financial resources, and credentialing restrictions. Over 90% of respondents reported that an outcome assessment should be appropriate for use with TR participants of all ages and diagnoses/life experiences. Additionally, respondents consistently reported that a wide variety of outcome areas (i.e., cognitive outcomes, communication outcomes, emotion regulation, physical outcomes, quality of life outcomes, self-efficacy outcomes, social outcomes, empathy outcomes, recreation/leisure outcomes, horsemanship skills, community integration, and daily living activities) are important to measure in TR practice. The outcomes areas identified by respondents are consistent with research findings in the TR literature; specifically, research has demonstrated that TR can improve mental functions (Helmer et al., 2021), social functioning (Gabriels et al., 2015), emotional regulation skills (Hoagwood et al., 2022), communication skills (Keino et al., 2010), physical function (T. D. Homnick et al., 2015; Rigby et al., 2020a), quality of life (Fields et al., 2018; White-Lewis et al., 2019), community integration (Lassell et al., 2021), and participation in daily living activities (Bunketorp-Käll et

al., 2017). Given these findings, a battery of standardized outcome assessments proposed for use in the TR setting should measure a wide variety of outcomes in TR participants from a variety of age groups, diagnoses, and life experiences (i.e. youth at-risk, veterans). Additionally, it may benefit TR professionals and their clients if assessments can be systematically altered based on the clients' unique identified needs and situations.

Regarding the logistics of implementing standardized assessments, there was not consensus among survey respondents about who should complete an assessment (i.e., CTRI, participant, caregiver), or how the assessment should be delivered (i.e., computer/iPad, paper-pencil, or both). The best standardized assessment format likely depends on individual characteristics of TR barns (e.g., do they have iPads readily available? Do they typically complete intake forms on paper?), so it may be beneficial for standardized assessments to be available in both virtual and paper/pencil forms. There was more consensus that assessments should require no more than 20 minutes to administer, and should be freely available or low-cost. Therefore, if multiple assessments are identified, they should require no more than 20 minutes total, and the cost for administering them should remain minimal.

Limitations

This study includes several limitations. Firstly, respondents were not asked their geographical location or demographic information. These data would have allowed us to understand if trends existed in different areas across the country or based on gender, age, race, or ethnicity. Such demographic data should be included in future studies. Additionally, some sections of the survey did not include a short-answer section, forcing respondents to identify a pre-written response and limiting our capacity to understand the nuances of their answers. Finally, this study is limited by the absence of non-TR professional responses. While input from

those who provide TR services is important, it will also be important to identify needs of TR participants and caregivers.

Future Research Directions and Conclusions

To our knowledge, this is the first study to gather information from TR stakeholders about the potential usefulness of standardized assessments in community-based TR services. Future research should 1) identify standardized assessments that may be clinically useful, and 2) pilot their use in community-based TR to understand whether these assessments are feasible in actual TR environments. As a next step in this research agenda, we plan to conduct interviews and focus groups with TR stakeholders to continue identifying key components which will make standardized assessments useful in the TR field. Additionally, it is important to employ measures in diverse TR settings and with diverse populations and diagnoses to understand whether these assessments could be useful in the broad TR field. Implementation of standardized assessment in TR could enhance the credibility of the profession and provide a means for communicating the vast benefits of community-based TR to a variety of stakeholders.

CHAPTER 3: SELF-REFLECTION

My experience engaging in this master's thesis has shaped my occupational therapy education and perspective of occupational therapy practice. As I reflect on this experience, I see my worldview, which stems from my personal background, integrate with what I have gained from my coursework and research experience to begin building my future career supporting people to bring meaning and purpose to their lives through participation in meaningful occupations. My own personal history serves as the foundation, with my view of humans as valuable and teleological beings creating the drive to support others in pursuit of their personal telos. My occupational therapy coursework has provided me with the tools and language to *think* and *act* like a good occupational therapist, undergirded by the knowledge that engagement in meaningful occupations supports people in living out their purpose. Finally, my occupational therapy research experience has revealed to me the importance of seeking the truth, practicing based on evidence from many sources, and the importance of being both structured and flexible when pursuing important goals. In the final chapter of my thesis, I will reflect on my research experience, this project's impact on the occupational therapy profession, and how I have been shaped by my occupational therapy education.

The Research Experience

To begin building the framework for this process, I sought to understand the current literature on my thesis topic. I needed to understand how valuable participation in leisure and recreation occupations is for all people, regardless of disability status or diagnosis. I learned that people with disabilities have fewer opportunities for recreation participation but that TR is one activity specifically designed to support people of all ability levels. Additionally, engagement in TR as a recreation activity provides broad benefits, which are clearly indicated in the TR

literature (Farias-Tomaszewski et al., 2001; Gabriels et al., 2015; T. D. Homnick et al., 2015; Johnson et al., 2018). However, as my framework continued to build, the "holes" became clearer. The studies published on the benefits of TR were conducted by researchers with advanced degrees and training, ample time to conduct their studies and implement outcome assessments, and often more funding to purchase assessments and train administrators. By using a survey to gather data from the professionals who actually provide TR services to broad populations, I sought to fill the holes in the current literature and support those professionals in enacting their specific solution to the complex problem of occupational deprivation for people with disabilities.

To analyze my data, I used RedCAP and Microsoft Excel, calculating means, medians, percentages, and frequencies of survey responses. Based on previous survey research and support from my advisor, Dr. Peters, I developed appropriate analysis techniques to build the cohesive frame for my thesis structure. The structure took shape, and I began to understand what TR professionals need from outcome assessments which they would use in their practice. The respondents' answers generally fell into the pre-determined answer options which we provided; however, for those responses which were generated by respondents which we had not previously categorized, I implemented qualitative content analysis techniques to categorize responses appropriately (Hsieh & Shannon, 2005). When developing themes, I sought to remain faithful to my respondents' answers in order to best serve and support them in their practice. Integrating my findings with previous research on program development and TR, the completed structure was formed, and I drew my conclusions.

My committee members and thesis advisor supported my building by providing valuable insight throughout the development, implementation, analysis, and interpretation of my research findings. Their perspectives opened my eyes to problems that I would have missed, clarified my

thoughts, and supported me in building a structure which would actually stand among pre-existing buildings in the TR and equine-assisted services literature. In particular, Dr. Peters' perspective was integral to developing my research questions, organizing my project and writing, and ensuring that I enacted the correct analyses and documented my results thoroughly.

Finally, my ultimate responsibility was to complete the finishing touches and present my effort to the public through final thesis edits, my thesis defense, and preparing to submit for publication in the open-access *Frontiers in Veterinary Science* journal, providing access to my stakeholders. I am looking forward to revealing my findings with the world through publication of my manuscript, defending my thesis, and initiating conversations about how the TR and occupational therapy professions can work together to support participation in this incredible occupation.

Contribution to the Occupational Therapy Profession

Professions solve societal problems (Abbott, 1988). The occupation therapy profession aims to solve problems with occupational performance and participation in everyday life. The therapeutic riding profession aims to solve problems of limited access to horses for people with diverse disabilities. These professions differ in their aims; however, they often work hand-in-hand with similar populations and have a unique opportunity to support the people they serve. Occupational therapists regularly use standardized assessments to evaluate their clients' function, track progress, create treatment plans, and measure intervention effectiveness (Piernik-Yoder & Beck, 2012). Occupational therapists report similar barriers to implementing standardized assessments as our survey respondents, including client burden, time to implement and score assessments, and assessment applicability to individual client circumstances. Occupational therapists, particularly those who implement equines into their practice, may have a stake in

assessments implemented by TR professionals. Specifically, occupational therapists have jurisdictional claim over using horses in occupational therapy practice to address specific occupational therapy-related goals. Their standardized outcome assessments will reflect these goals and often require occupational therapy training, credentialling, and expertise. On the contrary, we argue here that the assessments available to TR professionals should be the least restrictive in terms of credentials, cost, and outcomes. They should be generalizable to many populations but specific enough to apply to individual clients. This will allow for clearer distinctions to be made between occupational therapy and TR professions and the societal need each profession addresses.

This work also contributes to the occupational therapy profession because it supports engagement in meaningful occupations for diverse populations. Participation in leisure and recreation occupations promotes higher quality of life (Bishop-Fitzpatrick et al., 2017; Fredricks & Eccles, 2006), and people with disabilities have fewer opportunities for this type of participation (Prevention, 2022). By supporting TR professionals in communicating the benefits of their services, this project ultimately aims to enhance the reach of and provide increased access to TR programs. This serves as a form of advocacy for the TR profession and for occupational justice for people from diverse backgrounds, both of which fall under the purview of occupational therapy practice.

My Development

Over the course of this project and my occupational therapy education, I have broadened my view of research, practice, and of humans as occupational beings. With a background in exercise science research, I viewed research as a primarily quantitative endeavor, aimed at finding the “right” answer to solve societal problems. In fact, upon learning about qualitative

research, my response was, “You mean surveys, right?” In the intervening two years, my coursework, fieldwork, and research experiences have opened my eyes to the importance of gathering not only quantitative data but seeking to understand people’s experiences in the context of their values, social situation, and environment. This project has allowed me to gather information from some of the important stakeholders in the TR field and included both the quantitative information available from a survey as well as the qualitative data in the form of short answer responses. As I analyzed the data, it was crucial to integrate my respondents’ predetermined responses with what they stated in their short answers to acquire a fuller picture of their beliefs and contexts. This understanding will translate into my future practice as an occupational therapist, as I support my clients in achieving their full capacities and desires for participation.

Effective occupational therapy, like high quality research, is the marriage of Structuralist and Pragmatic perspectives, exercising creativity and flexible thinking within the secure framework of an organized system (Hooper & Wood, 2002). Specifically, research studies generally follow the structure of the Scientific Method; however, within that structure, there is flexibility in individual studies for scientist decisions, such as recruitment method, outcome assessments, data collection methodology, data analysis strategy, and differences in interpretation. Occupational therapy practitioners follow the occupational therapy process, creating an occupational profile and completing activity analysis, developing an intervention plan and goals, and measuring client outcomes. However, within each step of that process, the occupational therapist considers individual client factors and integrates those with the client’s values, goals, and desires to create a plan suitable for each client and their unique occupational situation. My coursework has assisted me in developing the mindset of an effective occupational

therapist by engraining these ideas into my perspective, and my research experience has given me an additional context for growth.

Finally, my research and educational experiences have solidified my understanding of humans as occupational beings. Human beings are designed to engage with the world around us and to create meaning by interacting with our environments through *doing* (Matuska & Christiansen, 2008). Human beings are persons, individual substances of a rational nature (Kant & Paton, 1966). That is, the *essence* of both humanness and personhood is having a rational nature. There are accidents which result from nature or physical or psychological trauma which may impede individual humans' capacity for rationality; however, the essence of human persons, as a classification of being, remains rational. Within my foundational belief system, I understand humans as persons with inherent dignity and value. Our dignity comes from the immeasurably valuable capacity for rationality inherent in humanity, as well as the irreplaceable uniqueness of our subjective experiences (Zagzebski, 2016). These beliefs have been supported throughout my occupational therapy education and provide the groundwork for my desires to support my future clients' function. Humans are also teleological, having a purpose. We have metaphysical and spiritual purposes, which can be lived out in the ways in which we occupy our time and space. Therefore, I view my telos as an occupational therapist as supporting my clients in living out their teloi through meaningful interactions with their environments by enacting their occupations. My occupational therapy education and research experiences have prepared me for this profession, and I look forward to supporting my clients in their individual, purpose-filled lives.

REFERENCES

Abbott, A. (1988). The system of professions. An essay on the division of expert labor. In *University of Chicago Press* (Vol. 21, Issue 3). https://doi.org/10.1177/096100068902100308

About - High Hopes Therapeutic Riding. (n.d.). Retrieved April 4, 2023, from https://highhopestr.org/about/

Aman, M. G., Singh, N. N., Stewart, A. W., & Field, C. J. (1985). Psychometric characteristics of the Aberrant Behavior Checklist. *American Journal of Mental Deficiency*, 492–502. https://psycnet.apa.org/record/1985-19034-001

Asher, A. V., Parham, L. D., & Knox, S. (2008). Interrater reliability of sensory integration and praxis tests (SIPT) score interpretation. *American Journal of Occupational Therapy*, *62*(3), 308–319. https://doi.org/10.5014/AJOT.62.3.308

Bass, M. M., Duchowny, C. A., & Llabre, M. M. (2009). The effect of therapeutic horseback riding on social functioning in children with autism. *Journal of Autism and Developmental Disorders*, *39*(9), 1261–1267. https://doi.org/10.1007/s10803-009-0734-3

Bishop-Fitzpatrick, L., Smith DaWalt, L., Greenberg, J. S., & Mailick, M. R. (2017). Participation in recreational activities buffers the impact of perceived stress on quality of life in adults with autism spectrum disorder. *Autism Research : Official Journal of the International Society for Autism Research*, *10*(5), 973. https://doi.org/10.1002/AUR.1753

Bunketorp-Käll, L., Lundgren-Nilsson, Å., Samuelsson, H., Pekny, T., Blomvé, K., Pekna, M., Pekny, M., Blomstrand, C., & Nilsson, M. (2017). Long-Term Improvements after Multimodal Rehabilitation in Late Phase after Stroke. *Stroke*, *48*(7), 1916–1924. https://doi.org/10.1161/STROKEAHA.116.016433

Chesney, M. A., Neilands, T. B., Chambers, D. B., Taylor, J. M., & Folkman, S. (2006). A validity and reliability study of the coping self-efficacy scale. *British Journal of Health Psychology*, *11*(Pt 3), 421. https://doi.org/10.1348/135910705X53155

Constantino, J. N. (2013). Social Responsiveness Scale. *Encyclopedia of Autism Spectrum Disorders*, 2919–2929. https://doi.org/10.1007/978-1-4419-1698-3_296/COVER

DiTommaso, E., & Spinner, B. (1993). The development and initial validation of the Social and Emotional Loneliness Scale for Adults (SELSA). *Personality and Individual Differences*, *14*(1), 127–134. https://doi.org/10.1016/0191-8869(93)90182-3

Downie, W. W., Leatham, P. A., Rhind, V. M., Wright, V., Branco, J. A., & Anderson, J. A. (1978). Studies with pain rating scales. *Annals of the Rheumatic Diseases*, *37*(4), 378–381. https://doi.org/10.1136/ARD.37.4.378

Farias-Tomaszewski, S., Jenkins, S. R., & Keller, J. (2001). An Evaluation of Therapeutic Horseback Riding Programs for Adults with Physical Impairments. *THERAPEUTIC RECREATION JOURNAL*, *35*(3), 250–257.

Ferraz, M. B., Quaresma, M. R., Aquino, L. R. L., Atra, E., Tugwell, P., & Goldsmith, C. H. (1990). Reliability of pain scales in the assessment of literate and illiterate patients with rheumatoid arthritis. *Journal of Rheumatology*, *17*(8), 1022–1024.

Fields, B., Bruemmer, J., Gloeckner, G., & Wood, W. (2018). Influence of an Equine-Assisted Activities Program on Dementia-Specific Quality of Life. *American Journal of Alzheimer's Disease and Other Dementias*, *33*(5), 309–317. https://doi.org/10.1177/1533317518772052

Fieseler, G., Molitor, T., Irlenbusch, L., Delank, K. S., Laudner, K. G., Hermassi, S., & Schwesig, R. (2015). Intrarater reliability of goniometry and hand-held dynamometry for shoulder and elbow examinations in female team handball athletes and asymptomatic

volunteers. *Archives of Orthopaedic and Trauma Surgery*, *135*(12), 1719–1726. https://doi.org/10.1007/S00402-015-2331-6

Fredricks, J. A., & Eccles, J. S. (2006). Is extracurricular participation associated with beneficial outcomes? Concurrent and longitudinal relations. *Developmental Psychology*, *42*(4), 698–713. https://doi.org/10.1037/0012-1649.42.4.698

Gabriels, R. L., Pan, Z., Dechant, B., Agnew, J. A., Brim, N., & Mesibov, G. (2015). Randomized Controlled Trial of Therapeutic Horseback Riding in Children and Adolescents With Autism Spectrum Disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *54*(7), 541–549. https://doi.org/10.1016/j.jaac.2015.04.007

Gharaei, E., Shojaei, M., & Daneshfar, A. (2019). The Validity and Reliability of the Bruininks–Oseretsky Test of Motor Proficiency, 2nd Edition Brief Form, in Preschool Children. *Annals of Applied Sport Science*, *7*(2), 3–12. https://doi.org/10.29252/AASSJOURNAL.7.2.3

Groark, C. J., & McCall, R. B. (2009). Community-Based Interventions and Services. *Rutter's Child and Adolescent Psychiatry: Fifth Edition*, 969–988. https://doi.org/10.1002/9781444300895.CH60

Hallion, L. S., Steinman, S. A., Tolin, D. F., & Diefenbach, G. J. (2018). Psychometric Properties of the Difficulties in Emotion Regulation Scale (DERS) and Its Short Forms in Adults With Emotional Disorders. *Frontiers in Psychology*, *9*(APR). https://doi.org/10.3389/FPSYG.2018.00539

Harris, P. A., Taylor, R., Minor, B. L., Elliott, V., Fernandez, M., O'Neal, L., McLeod, L., Delacqua, G., Delacqua, F., Kirby, J., & Duda, S. N. (2019). The REDCap consortium:

Building an international community of software platform partners. *Journal of Biomedical Informatics*, *95*. https://doi.org/10.1016/j.jbi.2019.103208

Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap)-A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, *42*(2), 377–381. https://doi.org/10.1016/j.jbi.2008.08.010

Hatfield, D. R., & Ogles, B. M. (2004). The use of outcome measures by psychologists in clinical practice. *Professional Psychology: Research and Practice*, *35*(5), 485–491. https://doi.org/10.1037/0735-7028.35.5.485

Helmer, A., Wechsler, T., & Gilboa, Y. (2021). Equine-assisted services for children with attention-deficit/hyperactivity disorder: a systematic review. In *Journal of Alternative and Complementary Medicine* (Vol. 27, Issue 6, pp. 477–488). J Altern Complement Med. https://doi.org/10.1089/acm.2020.0482

Hoagwood, K., Vincent, A., Acri, M., Morrissey, M., Seibel, L., Guo, F., Flores, C., Seag, D., Peth Pierce, R., & Horwitz, S. (2022). Reducing Anxiety and Stress among Youth in a CBT-Based Equine-Assisted Adaptive Riding Program. *Animals*, *12*(19). https://doi.org/10.3390/ani12192491

Homnick, D. N., Henning, K. M., Swain, C. V., & Homnick, T. D. (2013). Effect of therapeutic horseback riding on balance in community-dwelling older adults with balance deficits. *Journal of Alternative and Complementary Medicine*, *19*(7), 622–626. https://doi.org/10.1089/acm.2012.0642

Homnick, T. D., Henning, K. M., Swain, C. V, & Homnick, D. N. (2015). The Effect of Therapeutic Horseback Riding on Balance in Community-Dwelling Older Adults: A Pilot

Study. *Journal of Applied Gerontology*, *34*(1), 118–126. https://doi.org/10.1177/0733464812467398

Hooper, B., & Wood, W. (2002). Pragmatism and Structuralism in Occupational Therapy: The Long Conversation. *The American Journal of Occupational Therapy*, *56*(1), 40–50. https://doi.org/10.5014/AJOT.56.1.40

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277–1288. https://doi.org/10.1177/1049732305276687

Hunsley, J., & Mash, E. J. (2007). *Evidence-Based Assessment*. https://doi.org/10.1146/annurev.clinpsy.3.022806.091419

Jette, D. U., Halbert, J., Iverson, C., Miceli, E., & Shah, P. (2009). Use of standardized outcome measures in physical therapist practice: Perceptions and applications. *Physical Therapy*, *89*(2), 125–135. https://doi.org/10.2522/ptj.20080234

Johnson, R. A., Albright, D. L., Marzolf, J. R., Bibbo, J. L., Yaglom, H. D., Crowder, S. M., Carlisle, G. K., Willard, A., Russell, C. L., Grindler, K., Osterlind, S., Wassman, M., & Harms, N. (2018). Effects of therapeutic horseback riding on post-traumatic stress disorder in military veterans. *Military Medical Research*, *5*(1). https://doi.org/10.1186/S40779-018-0149-6

Kant, I., & Paton, H. J. (1966). *The Moral Law or, Kant's Groundwork of the Metaphysic of Morals. Translated and Analysed by H. J. Paton*. https://philpapers.org/rec/KANTML-4

Keino, H., Funahashi, A., Keino, H., Miwa, C., Hosokawa, M., Hayashi, Y., & Kawakita, K. (2010). Psycho-educational horseback riding to facilitate communication ability of children

with pervasive developmental disorders. *Journal of Equine Science*, *20*(4), 79–88. https://doi.org/10.1294/jes.20.79

Kramer, J. M., Liljenquist, K., & Coster, W. J. (2016). Validity, reliability, and usability of the Pediatric Evaluation of Disability Inventory-Computer Adaptive Test for autism spectrum disorders. *Developmental Medicine & Child Neurology*, *58*(3), 255–261. https://doi.org/10.1111/DMCN.12837

Lai, J. S., Fisher, A. G., Magalhães, L. C., & Bundy, A. C. (1996). Construct Validity of the Sensory Integration and Praxis Tests. *Http://Dx.Doi.Org/10.1177/153944929601600201*, *16*(2), 75–91. https://doi.org/10.1177/153944929601600201

Lassell, R., Wood, W., Schmid, A. A., & Cross, J. E. (2021). A comparison of quality of life indicators during two complementary interventions: adaptive gardening and adaptive riding for people with dementia. *Complementary Therapies in Medicine*, *57*, 102658. https://doi.org/10.1016/j.ctim.2020.102658

Matuska, K. M., & Christiansen, C. H. (2008). A proposed model of lifestyle balance. *Journal of Occupational Science*, *15*(1), 9–19. https://doi.org/10.1080/14427591.2008.9686602

Mccall, R. B. (2009). Evidence-Based Programming in the Context of Practice and Policy. *Social Policy Report*, *XXIII*(III), 3–19.

Meenan, R. F., Mason, J. H., Anderson, J. J., Guccione, A. A., & Kazis, L. E. (1992). AIMS2. The Content and Properties of a Revised and Expanded Arthritis Impact Measurement Scales Health Status Questionnaire. *Arthritis & Rheumatism*, *35*(1), 1–10. https://doi.org/10.1002/ART.1780350102

Miller, J. F., Andriacchi, K., & Nockerts, A. (2015). *ASSESSING LANGUAGE PRODUCTION USING SALT SOFTWARE: A Clinician's Guide to Language Sample Analysis*. www.saltsoftware.com

multi-health-systems-usd. (n.d.). Retrieved April 23, 2023, from https://storefront.mhs.com/collections/gars-3

Nussbaumer, S., Leunig, M., Glatthorn, J. F., Stauffacher, S., Gerber, H., & Maffiuletti, N. A. (2010). Validity and test-retest reliability of manual goniometers for measuring passive hip range of motion in femoroacetabular impingement patients. *BMC Musculoskeletal Disorders*, *11*(1), 1–11. https://doi.org/10.1186/1471-2474-11-194/TABLES/3

PATH Intl. Registered Riding Instructor Certification Booklet. (n.d.). Retrieved November 12, 2022, from https://pathintl.org/certification/ctri/

Pearson. (2019, March 31). *PPVT-4: Reliability, Validity, and Demographic Information*. Pearson Assessments. https://support.pearson.com/usclinical/s/article/PPVT-4-Reliability-Validity-and-Demographic-Information

Pearson Assessments. (2020). *Qualifications Policy*. Pearson. https://www.pearsonassessments.com/professional-assessments/ordering/how-to-order/qualifications/qualifications-policy.html

Piernik-Yoder, B., & Beck, A. (2012). The use of standardized assessments in occupational therapy in the united states. *Occupational Therapy in Health Care*, *26*(2–3), 97–108. https://doi.org/10.3109/07380577.2012.695103

Prevention, C. for D. C. &. (2022). *Physical activity for people with disabilities*. CDC. https://doi.org/10.1016/S0140-6736(12)61799-1

RIDES: Rider Instruction, Development and Evaluation System. (n.d.). Saddle Up! Retrieved March 28, 2023, from https://www.saddleupnashville.org/rides-rider-instruction-development-and-evaluation-system/

Rigby, B. R., Davis, R. W., Bittner, M. D., Harwell, R. W., Leek, E. J., Johnson, G. A., & Nichols, D. L. (2020a). Changes in Motor Skill Proficiency After Equine-Assisted Activities and Brain-Building Tasks in Youth With Neurodevelopmental Disorders. *Frontiers in Veterinary Science*, *7*, 22. https://doi.org/10.3389/fvets.2020.00022

Rigby, B. R., Davis, R. W., Bittner, M. D., Harwell, R. W., Leek, E. J., Johnson, G. A., & Nichols, D. L. (2020b). Changes in Motor Skill Proficiency After Equine-Assisted Activities and Brain-Building Tasks in Youth With Neurodevelopmental Disorders. *Frontiers in Veterinary Science*, *7*. https://doi.org/10.3389/fvets.2020.00022

Rose, D. J., Lucchese, N., & Wiersma, L. D. (2006). Development of a multidimensional balance scale for use with functionally independent older adults. *Archives of Physical Medicine and Rehabilitation*, *87*(11), 1478–1485. https://doi.org/10.1016/J.APMR.2006.07.263

Ryckman, R. M., Robbins, M. A., Thornton, B., & Cantrell, P. (1982). Development and validation of a physical self-efficacy scale. *Journal of Personality and Social Psychology*, *42*(5), 891–900. https://doi.org/10.1037/0022-3514.42.5.891

Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The Self-Efficacy Scale: Construction and Validation. *Psychological Reports*, *51*(2), 663–671. https://doi.org/10.2466/PR0.1982.51.2.663

Temple Grandin Equine Center | CSU Spur at the NWC. (n.d.). Retrieved February 27, 2023, from https://csuspur.org/tgec/

Therapeutic Horsemanship | Professional Certifications | PATH Intl. (n.d.). Retrieved April 23, 2023, from https://pathintl.org/

Turner-Stoke, L. (2009). Goal attainment scaling (GAS) in rehabilitation: A practical guide. *Clinical Rehabilitation*, *23*(4), 384. https://doi.org/10.1177/0269215509346900

Whalen, C. N., & Case-Smith, J. (2012). Therapeutic effects of horseback riding therapy on gross motor function in children with cerebral palsy: a systematic review. *Physical & Occupational Therapy in Pediatrics*, *32*(3), 229–242. https://doi.org/10.3109/01942638.2011.619251

White-Lewis, S., Johnson, R., Ye, S., & Russell, C. (2019). An equine-assisted therapy intervention to improve pain, range of motion, and quality of life in adults and older adults with arthritis: A randomized controlled trial. *Applied Nursing Research*, *49*, 5–12. https://doi.org/10.1016/j.apnr.2019.07.002

Wilkins, K. C., Lang, A. J., & Norman, S. B. (2011). Synthesis of the Psychometric Properties of the PTSD Checklist (PCL) Military, Civilian, and Specific Versions. *Depression and Anxiety*, *28*(7), 596. https://doi.org/10.1002/DA.20837

Wood, W. (2005). Toward developing new occupational science measures: An example from dementia care research. *Journal of Occupational Science*, *12*(3), 121–129. https://doi.org/10.1080/14427591.2005.9686555

Wood, W., Alm, K., Benjamin, J., Thomas, L., Anderson, D., Pohl, L., & Kane, M. (2021). Optimal terminology for services in the United States that incorporate horses to benefit people: a consensus document. *Journal of Alternative and Complementary Medicine*, *27*(1), 88–95. https://doi.org/10.1089/acm.2020.0415

Zagzebski, L. (2016). The Dignity of Persons and the Value of Uniqueness. In *Proceedings and Addresses of the APA* (Vol. 90).