The Open Journal of Occupational Therapy

Volume 1
Issue 4 *Summer 2013*

Article 3

August 2013

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Recommended Citation

Classen, S., Winter, S. M., Velozo, C. A., Hannold, E. M., & Rogers, J. (2013). Stakeholder Recommendations to Refine the Fitness-to-Drive Screening Measure. *The Open Journal of Occupational Therapy, 1*(4). https://doi.org/10.15453/2168-6408.1054

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Stakeholder Recommendations to Refine the Fitness-to-Drive Screening Measure

Abstract

In developing the web-based Fitness-to-Drive Screening Measure (FTDS) and keyform (results output) for use to identify at-risk older drivers, we examined the needs, perspectives, and suggestions of three stakeholders groups: occupational therapy practitioners, certified driver rehabilitation specialists (CDRSs), and family members/caregivers. We conducted three focus groups, which were moderated, recorded, transcribed, and analyzed using directed content analysis. Respondents in two focus groups also rated FTDS aspects (e.g., ease of use, format, and relevance), using a visual analog scale (VAS, 0-10 scale with 10 being excellent). All three stakeholder groups contributed to the development of the web-based FTDS. Results from occupational therapy practitioners addressed face validity, appearance, wording, and usability; CDRSs informed follow-up recommendations; and family members/caregivers provided keyform feedback. High VAS ratings (> 7 on 1-10 scale) from the CDRSs (8.4, SD+0.8) and family members/caregivers (9.01, SD+1.02) indicated FTDS acceptability. Overall, our findings support the measure's utility and acceptability among these users. As such, the FTDS may position family members/caregivers to identify at-risk older drivers, facilitate targeted discussions of driving difficulty among occupational therapists and their clients, and afford OT-CDRS an entry point for intervention and clinical decision making.

Keywords

Outcomes Research, Automobile Driving, Family Members, Seniors, Screening, Qualitative Research

Cover Page Footnote

Acknowledgements: We acknowledge and thank the respondents for their time, effort, and interest in helping us refine the FTDS. We acknowledge the Institute for Mobility, Activity, and Participation at the University of Florida for infrastructure support. Funding: The project was funded by the Department of Transportation via the University of Florida Center for Multimodal Studies on Congestion Mitigation (CMS) # 00063055 (PI-Classen) and the Florida Department of Transportation Project # BDK77.

Credentials Display

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DOI: 10.15453/2168-6408.1054

This applied research is available in The Open Journal of Occupational Therapy: https://scholarworks.wmich.edu/ojot/vol1/iss4/3

The Fitness-to-Drive Screening (FTDS) Measure, formerly known as the Safe Driving Behavior Measure, was developed using item response theory, classical test theory (Classen et al., 2012a, 2012b; Classen et al., 2010), and qualitative methods with stakeholder input (Winter et al., 2011). The FTDS was created for use by family members/caregivers (hereafter referred to as caregivers) and professionals (e.g., driving rehabilitation specialists, driving evaluators, and occupational therapy practitioners). In this study, the authors solicited stakeholders' opinions to obtain targeted feedback for further improving the FTDS.

Literature Review

Assessment of older drivers is a critically important issue due to the anticipated 76 million Baby Boomers coming of age 65 in the next 17 years. Driving, an instrumental activity of daily living (IADL), is an emerging practice area for occupational therapy practitioners (American Occupational Therapy Association [AOTA], 2010). The industry gold standard assessment is a comprehensive driving evaluation (CDE) administered by a driving rehabilitation specialist (DRS) (AOTA, 2010; Canadian Association of Occupational Therapists [CAOT], 2009). However, the CDE requires an investment in time, labor, cost, specialized equipment, and training. Limited access to a DRS, out of pocket payments, and the potential to be reported to the Department of Motor Vehicles (DMV) impact the utility of the CDE (Kua, Korner-Bitensky, & Desrosiers, 2007; Wang & Carr, 2004).

Conversely, self- or proxy assessments are methods to examine the performance of older drivers (National Highway Traffic Safety Administration, 2008). Such methods can provide background information about the driver and reveal pertinent information about their driving habits and driving performance. Self- or proxy reports can be completed in less time than a CDE, require minimal instruction, can be made widely available at low to no cost, and satisfy older adults' preference for convenience and confidentiality. However, self-report measures have selection bias (i.e., capable persons are more likely to complete the self-report) and social desirability bias (i.e., persons are more likely to give answers that will be viewed favorably by others) (Sundström, 2005; Zhou & Lyles, 1997).

Due to self-report biases, screening by way of proxy respondents may be preferable, especially for everyday activities. The FTDS is constructed specifically to support caregivers with screening of older drivers (Classen et al., 2013; Classen et al., 2012a, 2012b; Classen et al., 2010; Winter et al., 2011). Specifically, the FTDS has three sections: Section A: Demographic profile, Section B: Driving history profile, and Section C: Driving behaviors. Section C consists of a 54-item questionnaire to determine the level of difficulty a driver reportedly experienced in the last 3 months when executing driving behaviors. Difficulty with the driving task is rated via a 4-point adjectival scale ranging from 1 = very difficult to 4 = not difficult[1]. A keyform, or

[1] Information on the psychometric properties of the FTDS Measure can be found in our listed publications and the web-site http://fitnesstodrive.phhp.ufl.edu/.

clinical outcome form, provides the results summary that illustrates the relationship between the client's performance and the items of an instrument. The keyform is generated from the "General Keyforms" output table produced from the Winsteps Rasch analysis software program (Winsteps; Chicago, IL) (Linacre, 2010). A core keyform feature is that it provides immediate and useful information to the stakeholder (Figure 1). For example, at a glance, the occupational therapy practitioner may observe the client's profile, including tasks (expressed as items) that are *not difficult* to perform or *difficult* to perform. A major benefit of the keyform is that it provides an entry point for occupational therapy interventions by illustrating which behaviors or skills might be appropriate to target based upon the person's ability level (Kielhofner, Dobria, Forsyth, & Basu, 2005).

Despite the psychometrics established in earlier testing, we found the paper and pencil version of the FTDS limited in providing opportunities for self-scoring, interpretation, feedback, and recommendations. Both older adults and family caregivers are using the internet as an important source of health information (Fox, 2011). Older adults in the Harrod study (2011) expressed a preference for health information that helped them maintain their independence and life participation. For these reasons, the necessity of a web-based version became clear. Advantages of a web-based version include convenience of use, ease of data collection, opportunities for re-assessment, confidentiality, no cost, and the ability to receive targeted and immediate feedback (Bensley & Lewis, 2002). Although initially developed as a self-report, based on studies of rater reliability, the web-based FTDS was geared toward caregivers. In prior FTDS work, and in addition to their role as a proxy rater of the older driver, caregivers were involved in establishing face and content validity (Classen et al., 2010; Winter et al., 2011), determining construct validity (Classen et al., 2012a), and determining rater reliability and rater effects (leniency vs. severity) among three rater groups (older drivers, caregivers, and driving evaluators) (Classen et al., 2012b). Last, in criterion validity studies, caregivers' ratings of driver difficulty were shown to be more accurate in identifying at-risk drivers, potentially leading to more appropriate safety recommendations (Classen et al., 2013).

Purpose

The purpose of this study was to continue to engage stakeholders (occupational therapy practitioners, expert CDRSs, and caregivers) in further development of the web-based FTDS and keyform. Each stage of the FTDS development had specific information needs, which determined the goals for three focus groups as follows. For Focus Group 1, with occupational therapy practitioners, we sought to assess keyform understandability and utility and to obtain feedback on improving clarity. For Focus Group 2, with CDRSs, we sought expert opinion on clinical recommendations for the FTDS and keyform feedback, including Visual Analog Scale (VAS) ratings. For Focus Group 3, with

caregivers, we sought feedback on the understandability and ease-of-use of the web-based measure and keyform feedback, including VAS ratings.

Methods

This project received Institutional Review Board approval. Participants provided written informed consent prior to focus group involvement and were paid either $50 or $100 based on their role and the stage of the study.

Design

For our primarily qualitative study, we solicited stakeholder input via three focus groups, with each group addressing specific goals during different phases of developing the web-based FTDS and keyform as outlined above. We have also, secondarily, quantified responses from stakeholders via visual analogue scaling.

Participants

We recruited participants by purposive sampling for all stakeholder groups (Morse, 1994). Sample size for the groups was between 5 and 12, depending on the purpose and degree to which we required in-depth responses (Krueger & Casey, 2009). For Focus Group 1, we recruited 12 occupational therapy practitioners via our networking with the AOTA Older Driver Group. Participants in this group had at least 2 years of clinical practice experience as occupational therapists, conducting driving screenings, assessments, and evaluations, including work with drivers $\geq$ 65 years. Focus Group 2 included an expert panel of five CDRSs with at least 10 years of experience in driving evaluation and rehabilitation, including work with drivers $\geq$ 65 years. Focus Group 3 included seven caregivers who had rated a driver previously on the FTDS. Since certain caregiver characteristics had the potential to influence ratings, participants were selected to represent a variety of viewpoints, including the perspective of both male and female caregivers, caregivers living in rural as well as suburban or urban settings, caregivers from different races, and caregivers who are family members or who are non-related.[2]

Data Collection

Each focus group was moderated using a guide of predetermined questions and prompts. Participants answered questions about aspects of keyform utility, i.e., ease of use, time to complete, training required, format, interpretation, meaning, and relevance (Smart, 2006). Specific content by group is discussed next.

Focus Group 1 (Occupational Therapy Practitioners). The setting was a hotel conference room in Philadelphia during the 2011 AOTA annual conference. Following an overview of the FTDS and keyform, we led moderated discussions with participants divided into two groups, using the focus group guide.[3] Designated research personnel took notes, and a representative from each group provided a summary of the group discussion, which was audio-recorded and later transcribed.

[2] Caregiver in this study is a person who has observed the driver's driving to a sufficient degree so they can answer basic driving history questions and rate the difficulty of 54 driving behaviors on the FTDS Section C.

[3] Focus group guides are available from the corresponding author.

Figure 1. Example of a keyform showing the profile of a driver who "passed" the on-road test when rated by his/her family member/caregiver. Ratings are mostly 4's (no difficulty) and 3's (a little difficulty). Ln(s) = lane(s); L = left; traf = traffic. In the web-based version items are fully displayed when the cursor points to the items as listed in the "item description".

Focus Group 2 (Expert Panel). The setting was in a private room at Adaptive Mobility, Inc., in Orlando, FL. During the four hr meeting, members were oriented to the development and functionality of the keyform with the goal to formulate recommendations, the next logical steps for caregivers to follow. We illustrated the keyform with three case study examples of drivers who had failed, passed, or received a borderline score for the on-road test. The expert panel members provided verbal feedback and, in addition to the qualitative feedback, they also completed 11 questions on keyform usability via a visual analogue scale (VAS) to quantify their ratings (Streiner & Norman, 2008). The visual analogue scale indicated either a need for revision (rating <7.0) or acceptable usability (ratings ≥7.0). We video recorded the panel discussion for retrieval of content during data analysis.

Focus Group 3 (Caregivers). The setting was a private conference room at the University of Florida, Gainesville, FL. The duration was approximately two hours and included an introduction, new developments (e.g., an instructional on-line script), administration procedures, and guidelines for interpreting the web-based measure and keyform. Moderators presented three case study examples of drivers with keyforms exemplifying the three driver profiles (basic driver, routine driver, and accomplished driver) and draft recommendations for each driver category. In addition to answering the focus group guide questions, participants suggested revisions for the web-based FTDS and keyform. The research team audio-recorded verbal feedback for transcription and participants completed a visual analogue scale to quantify usability, strengths, and weaknesses of the web-based tool. Assigned research personnel

took field notes, which were integrated with the verbal and written responses for data analysis.

Coding and Data Analysis

Focus Group 1 (Occupational Therapy Practitioners). We transcribed the focus group data and hand-written comments, verbatim, into Microsoft Word® documents and imported the documents into QSR International's NVivo 8 software (NVivo qualitative data analysis software, 2008) for coding. Guided by a directed content analysis approach (Hsieh & Shannon, 2005), we coded data emphasizing four broad themes: appearance, wording, usability, and recommendations for improvement. To ensure rigor, we reviewed coding and results in-depth by a primary and secondary analyst and then the research team. Appearance referred to visual appeal of the keyform (layout, font, spacing, etc.) and the degree to which the FTDS (keyform or items) layout and formatting promoted the tool's purpose of (a) discriminating between levels of driving ability, (b) highlighting driver challenges, and (c) capturing driver strengths and abilities. Wording referred to the readability and whether or not the item language was clear. Usability referred to the overall ease-of-use of the keyform. Recommendations for improvement included suggestions for revisions, additions, or strategies to improve user friendliness.

Focus Group 2 (Expert Panel). Using the directed content analysis approach (Hsieh & Shannon, 2005) we coded data (focus group transcript and field notes) to address the focus group discussions. Identified themes included clinical utility of the measure; clinical, ethical, and legal implications of using the FTDS; and recommendations for drivers. From the data (visual analogue scale, video-taped materials, and field notes), we synopsized changes to be made to the web-based keyform and used the experts' feedback to develop recommendations for each of the three major driver classes (continue to drive, needs input from a professional, or stop driving and undergo a CDE).

Focus Group 3 (Caregivers). Analysis entailed integration of the field notes, visual analog scale responses, transcripts, and coded data to summarize responses using a directed content analysis approach (Hsieh & Shannon, 2005). The group made recommendations to clarify wording, revise instructions, enhance usability of web-based features (e.g., data entry via drop-down boxes rather than the type-in method), improve the introductory script, and modify the presentation of the keyform.

Results

Focus Group 1 (Occupational Therapy Practitioners)

Demographics. Twelve participants, 10 women and two men, five occupational therapists, and seven OT/CDRSs, participated. Job classifications were OT/CDRS in a community (n = 4) or academic setting (n = 3), OT/Researcher (n = 3), and OT/Administrative or Management (n = 2).

Directed content analysis.

- Appearance: Participants commented that hierarchical listing (easy to hard) of

the items and color coding improved the overall look and readability of the keyform by increasing their ability to see, at a glance, the progression of difficulty experienced as drivers encountered more challenging items. They suggested emphasizing the transition zones where overall ratings shift (e.g., from "a little difficulty" to "a moderate level of difficulty").

- Wording: Formatting comments included that the keyform was too "busy" and "difficult to read." Participants suggested using a legend to clarify terms like "cautiously" or "dense traffic," using full items vs. abbreviated items and increasing the font size for "elder friendliness."
- Usability: Participants commented that the keyform may help identify driver limitations with the potential to be addressed by the occupational therapy generalist before pursuing referral to a CDRS. The keyform could also help justify referral to and intervention by a CDRS.
- Suggestions for revisions: Participants suggested changing the formatting to allow space for comments to provide options for reports comparing the different raters (e.g., driver vs. caregiver), and to enhance training for use of the FTDS (e.g., video instruction).

Focus Group 2 (Expert Panel)

Demographics. Five occupational therapists, all CDRSs, each with more than 10 years of experience, participated. They represented three states with four attending on-site and one via telephone conference.

Results. Data from the focus group questions were coded according to two themes: (a) clinical utility of the FTDS, and (b) recommendations for classifications of drivers.

- Clinical utility: As illustrated in Table 1, the CDRSs perceived the FTDS as "a screening tool that can trigger conversations and broad decisions about driving," one that "measures behavior in such a way as to give caregivers a structured method of rating driving difficulty" and "allows information to be shared with the driver, and professionals such as a doctor or a CDRS." The keyform and recommendations may enhance the "clarity of communication about driving concerns" by illustrating specific areas of driving difficulty as rated by the caregiver.
- Recommendations: The expert panel suggested three driver classifications ("pass, borderline, fail"), with recommendations for the driver and their caregiver. They discussed the clinical, ethical, and legal implications of making recommendations, and sought the "just right fit recommendation" for each driver classification ("pass, borderline, fail"). For the driver groups rated as having moderate

to severe difficulty (comparative to "borderline" or "fail" result of the on-road test), they were concerned that an overly severe rating may lead to caregiver-driver conflict, such as "take(ing) the driver off the road," or "reject(ing) the screening results." On the other hand, they felt lenient recommendations may prevent caregivers of at-risk drivers from taking appropriate steps to improve safety. Participants suggested language to facilitate action while minimizing negative impact (e.g., avoid words such as "threat" or "risk").

As an example, for drivers who were rated as having the least difficulty (the group expected to pass the on-road test), the panel's suggestions led to the following recommendation:

- Category: Accomplished Driver-Driving is overall good, but difficulty is experienced with some challenging driving situations (e.g., examples are selected from the driver's profile).
- Recommendation: It may be helpful to avoid or limit the challenging driving situations (described in the example). Based on your ratings, we do not think that a comprehensive driving evaluation is critical at this time; but, we recommend completing this screening at least annually or if there are any changes in the driver's status.

Likewise, the panel proposed specific recommendations for the "borderline" or "fail" driver profiles and general recommendations for all groups, such as "as suggested by the American Geriatrics Society seek a physical and eye exam annually, or earlier" or "take a mature drivers class offered by AAA or AARP."

The panel's feedback on the 11 keyform questions are listed in Table 1 with the mean VAS ratings ("0" to "10"; "10" indicates most acceptable rating). The overall VAS average of the respondent's keyform ratings was 8.4, SD = 0.8, indicating an overall high level of acceptance and no need for revision. Table 1 shows that mean ratings ranged from 7.7-8.9, with the lowest rating given for Q10a – "How would you rate the acceptability of the keyform for drivers?" and the highest rating given for Q5 – "Does the keyform adequately illustrate the transition zone, i.e., where the ratings shift, such as from *not difficult* to *a little difficult*?"

Focus Group 3 (Caregivers)

Demographics. Seven participants included five spouses (71.4%), one adult child (14.3%), and one friend (14.3%). Age range was 46-77 years (median age = 65); most were females (57.1%); 42.9% were Caucasian (n = 3), 28.6% were African-American (n = 2), and 28.6% were Asian (n = 2). All had at least a high school education, with most having a Bachelor's or higher degree (57.1%).

Directed content analysis. Data from the focus group questions were coded according to two themes: (a) suggested revisions, and (b) implications of the FTDS use for caregivers.

- Revisions: Changes suggested by participants for the web-based FTDS and keyform included renaming "caregiver" as "proxy" to indicate a family member, friend, or caregiver with sufficient knowledge to rate the driver's ability; clarifying instructions for rating each section; and incorporating "drop down boxes" to document numerical values (e.g., birth year). They suggested that we simplify the race question (FTDS Section A-demographics), re-phrase the driving history questions to address the proxy rater (FTDS Section B), and consider the use of "not applicable" vs. forced responses for the driving behavior questions (FTDS Section C). Participants also requested that a customer satisfaction survey be included with the web-based FTDS.
- Implications: The participants identified a need to initiate follow-up conversations with the driver's physician or to seek additional services and the need to manage conflicts that may arise from driver-caregiver disagreement on the ratings or recommendations.

Table 1

Focus Group 2: Expert Panel's Rating of the Keyforms by Questions, Quantitative and Qualitative Responses and Contributions to the Final FTDS Measure

Questions	Quantitative Responses from the VAS (Mean ±SD)	Qualitative Responses	Contributions to the final FTDS Measure available from http://ftds.phhp.ufl.edu/
Q1. From the case studies – does the keyform adequately demonstrate the differences in drivers' abilities?	8.1 ±1.8	P1- Caregiver report remarkably in line with the therapist's measure of abilities. P2- Easy to compare good/marginal/bad. P4- Yes, very clear, colors help.	From keyform data and expert feedback we stratified drivers into three categories based on ability.
Q2. How would you rate the ease of use of the keyform?	8.3 ±1.5	P1- Impressed with ease of getting a visible snapshot of the abilities. P1- Shows great promise in ease of use and understandability.	Added usability features including video explanation of keyform and hyperlinks for expanded definitions.
Q3. How would you rate the clarity of the item hierarchy?	8.2 ±1.0	P1- Hierarchy helps client / family understand that despite many intact abilities impaired abilities lead to the results/recommendations.	We explained the item hierarchy via the user manual and in video instruction.
Q4. Does the keyform adequately illustrate the driver's areas of difficulty?	7.9 ±1.7	P1- Caregiver self-report was impressively consistent to therapist's rating.	We used a three color system to highlight overall level of difficulty a driver experienced (Green–little to none, Yellow–moderate, and Red–Severe).
Q5. Does the keyform adequately illustrate the transition zone, i.e. where the ratings shift from "No Difficulty" to "A Little Difficulty"?	9.4 ±0.7	P1- Yes, very understandable. P2- Excellent!	We added color to clearly show transition zones.
Q6. How would you rate the readability (font, spacing, and orientation) of the keyform?	8.8 ±0.9	P2- Once oriented, I found it clear. P2- Excellent!	We addressed readability of keyform via font selection and layout.

Q7. How would you rate the understandability of the language used to describe the items?	7.9 ±1.7	P1- Clearly seems on the right track. P2- Great. P4- Some items need clarification or specific examples.	We used hyperlinks to display full item on-line.
Q8. How would you rate the acceptability of the keyform layout?	8.9 ±0.9	P1- Once oriented I found it easier. P2- Great. P5- Excellent .	We explained the layout and features of the keyform via a user manual and instructional videos.
Q9. How would you rate the acceptability of the keyform for occupational therapists?	8.8 ±1.2	P1- Once understood by OTs would be very eagerly accepted. P3- Great visual when talking to patients/family.	We created the keyform results and recommendations as a print out for review with a health professional.
Q10a. How would you rate the acceptability of the keyform for drivers?	7.7 ±1.5	P1- Builds self-awareness of deficits (R1). P4- Provide instructions. P4- Explain the layout/meaning.	We addressed acceptability via user manual explanations of how scores, categories, and recommendations are determined.
Q10b. How would you rate the acceptability of the keyform for caregivers?	8.2 ±1.2	P1- Could strongly enhance the therapeutic discussion. P1- Provides rationale for restriction or cessation. P2- Should definitely trigger conversation.	We enhanced instructions, explanations, printable keyform, and recommendations as logical next steps for caregivers.
Overall mean and SD	8.4 ±0.8		

Note. Q = question; P = participant; SD = standard deviation; FTDS = fitness-to-drive screening measure; VAS = visual analogue scale. Numerical data from the Visual Analogue Scale are used as continuous data. Not all raters provided written responses for feedback.

Table 2 presents the caregiver visual analog scale (VAS) ratings regarding purpose, clarity, understandability, and meaningfulness of the web-based keyform. The mean VAS score for the six questions across raters was 9.01/10 (SD = 1.02)

Table 2

Focus Group 3: Family Members/Caregivers' Visual Analogue Scale Ratings and Contributions to the Final FTDS Measure

Question	Mean	SD	Contributions to the final FTDS Measure http://ftds.phhp.ufl.edu/
Q1a. How well did we explain the purpose of the questionnaire?	9.26	0.82	We explained the FTDS's purpose via a user manual and instructional videos.
Q1b. How clear were the instructions of the questionnaire?	8.11	1.33	We enhanced instructions with videos for each FTDS section and user manual.
Q2a. How well did we explain the purpose of the keyform?	9.19	0.89	We created an instructional video on use of the keyform.
Q2b. Is the keyform useful, e.g., does it illustrate your areas of concern related to the driver's driving behaviors?	9.41	0.64	We tailored the recommendations for the caregivers to include examples of items where the driver experiences difficulty as per caregivers ratings.
Q2c. Is the keyform understandable, e.g., does it reflect the difficulties associated with the driver's behaviors?	8.73	1.10	We enhanced the keyform output to show ratings and color to indicate difficulty.
Q2d. Is the keyform meaningful, e.g., does it provide helpful recommendations regarding follow-up steps for the driver?	9.36	0.88	We targeted recommendations to three driver categories (at-risk, routine, and accomplished driver).
Mean	**9.01**	**--**	
SD	**--**	**1.02**	

Note. Data from the Visual Analogue Scale are used as continuous data.

Discussion

The occupational therapy practitioners' results supported the web-based FTDS and keyform as a potentially useful tool to provide a profile of the driver for further decision-making by a caregiver. Velozo and Woodbury (2011) suggested a major benefit of the keyform is that it can be used as the basis for interventions. In our focus group, the occupational therapy practitioners verified the usefulness of the keyform to "provide a visible snapshot of abilities" from which further interventions could be planned.

Based on the expert panel of CDRSs' specialized knowledge, in-depth understanding, and clinical reasoning (AOTA, 2010), we developed the classifications for drivers. As part of the classification, we formulated the "just right fit" recommendations for three driver profiles, with wording and action steps to guide caregivers in further decision-making. The expert panel also guided the word choices and tone of the recommendations and suggested "starting with the good," or highlighting what the driver was able to do before focusing on the deficits.

The caregivers provided feedback that the web-based FTDS and keyform were useful to rate and share a driver's ability level with the driver, the family doctor, or an occupational therapist. We implemented their suggestions to enhance the functionality, user-friendliness, understandability, and acceptability of the web-based FTDS.

Limitations

Our study limitations pertain to generalizability of the results, which can only be extrapolated to persons fitting the profile of our participants. However, we used purposive sampling, which yielded a reasonable representation of participants. For example, we had occupational therapists representing a variety of clinical and academic settings; we had experts representing three U.S. states and different practice settings; and we had caregivers from different age, gender, and racial groups. An additional limitation is study scope. For this study, we held one group with each stakeholder type (OTs, experts, and caregivers). We will address this limitation via formal and informal methods to obtain future feedback from each of the stakeholder groups represented. The strengths of the study pertain to the inclusion of three different stakeholder groups to share their specific perspectives and suggestions to enhance the web-based FTDS and keyforms. Moreover, qualitative responses were enhanced with quantitative VAS scoring. A future direction of this study is to conduct a findings meeting with members of the focus groups to verify that the FTDS has been enhanced in the suggested ways.

Conclusion

To our knowledge, this is the first study to include occupational therapy practitioners, CDRSs as experts, and caregivers in developing a driving measure. Each group provided input important for the FTDS refinement. For example, the greatest input from the occupational therapists pertained to keyform formatting, while the CDRSs provided

critical input on categories to classify the drivers and, accordingly, recommendations that will be meaningful for caregivers. The caregivers represented the end-users' view and made recommendations to ensure, when implemented, that the instrument is used in its intended fashion. Focus group findings provided guidance for improving the web-based FTDS and quantified its (FTDS) acceptability and usability. The enhanced FTDS measure is available at http://ftds.phhp.ufl.edu/.

References

American Occupational Therapy Association [Stav, W., & Pierce, S.] (2010). *Statement: Driving and community mobility*. *American Journal of Occupational Therapy*, *64*(suppl) S112-124.

Bensley, R. J., & Lewis, J. B. (2002). Analysis of internet-based health assessments. *Health Promotion Practice*, *3*(4), 463-476.

Canadian Association of Occupational Therapists. (2009). *CAOT position statement: Occupational therapy and driver rehabilitation.* Retrieved from http://www.caot.ca/default.asp?pageid=1353

Classen, S., Wang, Y., Winter, S. M., Velozo, C. A., Lanford, D. N., & Bédard, M. (2013). Concurrent criterion validity of the safe driving behavior measure: A predictor of on-road driving outcomes. *American Journal of Occupational Therapy*, *67*(1), 108-116.

Classen, S., Wen, P.-S., Velozo, C. A., Bédard, M., Winter, S. M., Brumback, B. A., & Landford, D. N. (2012a). Psychometrics of the self-report safe driving behavior measure for older adults. *American Journal of Occupational Therapy*, *66*(2), 233-241.

Classen, S., Wen, P.-S., Velozo, C. A., Bédard, M., Winter, S. M., Brumback, B. A., & Landford, D. N. (2012b). Rater reliability and rater effects of the safe driving behavior measure. *American Journal of Occupational Therapy*, *66*(1), 69-77.

Classen, S., Winter, S. M., Velozo, C. A., Bédard, M., Lanford, D., Brumback, B. A., & Lutz, B. J. (2010). Item development and validity testing for a self- and proxy report: The safe driving behavior measure. *American Journal of Occupational Therapy*, *64*(2), 296-305.

Fox, S. (2011). The social life of health information, 2011. Washington, DC: Pew Internet & American Life Project.

Harrod, M. (2011). "I Have to Keep Going": Why some older adults are using the internet for health information. *Ageing International*, *36*(2), 283-294. doi: 10.1007/s12126-010-9090-z

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277-1288.

Kielhofner, G., Dobria, L., Forsyth, K., & Basu, S. (2005). The construction of keyforms for obtaining instantaneous measures from the occupational performance history interview rating scales. *Occupational Therapy Journal of Research 25*(1), 23-32.

Krueger, R. A., & Casey, M. A. (2009). *Focus groups: A practical guide for applied research*. Thousand Oaks, CA: SAGE Publications.

Kua, A., Korner-Bitensky, N., & Desrosiers, J. (2007). Older individuals' perceptions regarding driving: Focus group findings. *Physical and Occupational Therapy in Geriatrics*, *25*(4), 21-40.

Linacre, J. M. (2010). A user's guide to Winsteps/Ministeps Rasch Model Computer Programs. Beaverton, Oregon: Winsteps.com.

Morse, J. M. (1994). Designing funded qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 220-235). Thousand Oaks, CA: SAGE publications.

National Highway Traffic Safety Administration (2008). *Older driver self-screening based on health concerns* (No. DOT HS 811 046A). Washington, D. C.: National Highway Traffic Safety Administration.

NVivo qualitative data analysis software (Version 8). (2008). Doncaster, Victoria, Australia: QSR International Pty Ltd.

Smart, A. (2006). A multi-dimensional model of clinical utility. *International Journal for Quality Health Care*, *18*(5), 377-382.

Streiner, D. L., & Norman, G. R. (Ed.). (2008). *Health measurement scales: A practical guide to their development and use* (4th ed.). Oxford: Oxford University Press.

Sundström, A. (2005). Self-assessment of knowledge and abilities. Umeå, Sweden: Umeå University.

Velozo, C. A., & Woodbury, M. L. (2011). Translating measurement findings into rehabilitation practice: An example using Fugl-Meyer Assessment-Upper Extremity with patients following stroke. *Journal of Rehabilitation Research and Development*, *48*(10), 1211-1221.

Wang, C. C., & Carr, D. B. (2004). Older driver safety: A report from the older drivers project. *Journal of the American Geriatrics Society*, *52*(1), 143-149.

Winter, S. M., Classen, S., Bédard, M., Lutz, B., Velozo, C. A., Lanford, D. N., & Brumback, B. (2011). Focus group findings for the self-report Safe Driving Behavior Measure. *Canadian Journal of Occupational Therapy*, *78*(2), 72-79.

Zhou, M., & Lyles, R. W. (1997). Self-selection bias in driver performance studies. *Transportation Research Record: Journal of the Transportation Research Board*, *1573*, 86-90.