Development and Content Validity of a Disability Self-Management Questionnaire for Hispanic Older Adults

Elsa M. Orellano-Colón, PhD, MSc, MOT, OTR/L, ATP*; Carla M. Feo-Portuondo, OTS*;
Francis N. Rivadeneira-Salvador, OTS*; Nicole M. Suazo-Valdez, OTS*;
Nicole M. Román-Medina, OTS*; Jonathan J. De Hoyos-Ramírez, OTS*;
Víctor E. Bonilla-Rodríguez, PhD†

Objective: There is no Spanish-language instrument for assessing the self-management strategies used by older adults with physical function disabilities to manage the difficulties that can occur in daily living activities. This study aimed to design and test the content validity of a Spanish version of the newly developed Self-Management of Function in Daily Living Activities Questionnaire (SF-DLAQ).

Methods: A methodological study, guided by the Person-Environment-Occupation-Performance (PEOP) model, was conducted to develop the SF-DLAQ. Stage 1 focused on designing the questionnaire, doing so using qualitative data obtained from 24 older adults and obtained from 10 existing scales that measure the self-management of chronic conditions. Stage 2 focused on expert judgement, which consisted of validating the questionnaire with 8 experts in aging using an item-level content validity index (I-CVI), a scale-level CVI (S-CVI), and the kappa statistic.

Results: All the scores that were attained in stage 2 were favorable, with those of the I-CVI for clarity ranging from 0.09 to 1.0 and those of the I-CVI for relevancy, the S-CVI, and the kappa all being 1.0.

Conclusion: The scale and item validity for the SF-DLAQ, Spanish version, has been demonstrated but should be confirmed with further testing. [*P R Health Sci J 2023;42(4):304-310*]

Key words: Older adults, Functional disabilities, Hispanic, Psychometrics, Questionnaires

Functional disability (defined for the purposes of our study as having any difficulty performing activities of everyday life) (1) is an adverse outcome of age-related chronic conditions; this kind of disability increases older adults' vulnerability to experiencing poor quality of life, loss of independence, poor health outcomes, higher health care costs, and mortality (2–7). Rehabilitation professionals have several strategies for managing the physical disabilities of older adults. Among them are teaching these individuals to use assistive technology devices and to be aware of and how to employ proper body mechanics; further, some might recommend that their older patients practice spirituality (8). However, few, if any, valid and reliable tools have been devised to assess whether older people use the strategies that they are taught in rehabilitation interventions. Current assessment practices mostly targets a person's ability or level of competence to perform everyday life activities; ithey uses instruments such as the Barthel Index for Activities of Daily Living (ADL) (9), the Katz Index of Independence in ADL (10), the Lawton Instrumental ADL (IADL) scale (11), and the Canadian Occupational Performance Measure (12). Other tools, such as the Patient-Reported Outcomes Measurement Information System (PROMIS) Self-Efficacy for Managing Chronic Conditions measures (13), assess self-reported levels of confidence in performing basic tasks and IADL without assistance, rather than the behaviors and strategies used by people to overcome their difficulties performing those tasks. While the importance of such measures is undeniable, these outcome measures provide very limited information regarding whether the patients being assessed adopt disability management behaviors such as taking rest breaks, altering task performance, or using assistive technologies to manage their difficulties in daily activities. Given the positive impact that disability self-management strategies have on older people's functional independence and wellbeing, it is important that outcome measures also assess which evidence-based strategies

*Occupational Therapy Program, School of Health Professions, University of Puerto Rico, Medical Sciences Campus, San Juan, PR; †Education Faculty, Graduate Studies Department, University of Puerto Rico Río Piedras Campus

The authors have no conflict of interest to disclose.

Address correspondence to: Elsa M. Orellano, PhD, University of Puerto Rico Medical Sciences Campus, School of Health Professions, Occupational Therapy Program, PO Box 365067, San Juan, Puerto Rico 00936-5067. Email: elsa.orellano@upr.edu

older people are or are not using, which might help to direct rehabilitation interventions for this individuals.

This study focused on the specific ways that members of this population managed their functional disabilities. We have defined disability self-management (DSM) as the day-to-day management of difficulties in the performance of the meaningful activities and tasks of daily life that result from physical impairments inherent to the normal process of aging or to having a chronic condition, defining DSM strategies as being those that allow individuals with disabilities to manage said difficulties.

In the present study, we used the Person-Environment-Occupation-Performance (PEOP) model (14) to develop a Spanish version of the Self-Management of Function in Daily Living Activities Questionnaire (SF-DLAQ). The intent of this questionnaire is to comprehensively assess the frequency with which older Hispanics use DSM strategies for managing their difficulties in ADL and/or IADL and that are caused by physical function disabilities. The specific aims of this study were to 1) develop the questionnaire items and 2) examine (using expert reviewers) the content validity of the questionnaire.

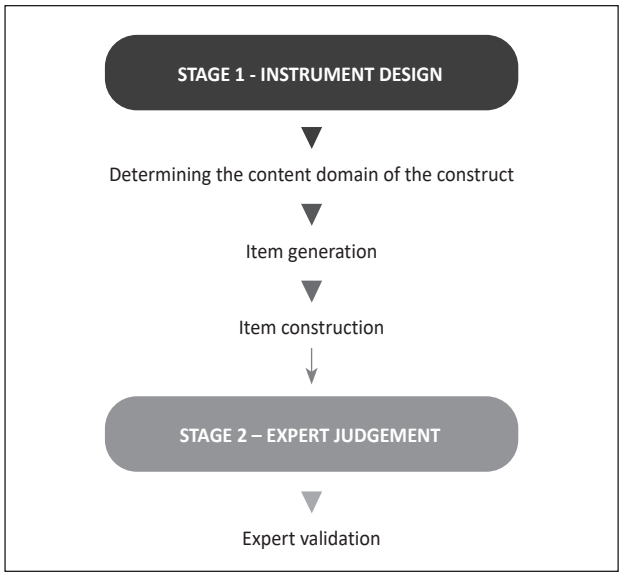

Figure 1. Stages of the study. This figure describes the 2 stages and the steps within each stage that were used to design the SF-DLAQ.

Patients and Methods

This study was approved by the Institutional Review Board of the University of Puerto Rico Medical Sciences Campus. We used a methodological research design (15) to develop the questionnaire and to test its content validity; to do so, we employed a 2-stage process: 1) instrument design (to generate the questionnaire items) and 2) expert judgement (to conduct the expert content validation) (described in Figure 1). We used recently published guidelines on questionnaire development (16,17) to generate the questionnaire items and conduct the content validation. Finally, we refined and organized the items in a suitable format so that the finalized items could be collected in a usable form.

Participants and recruitment procedures

To design the instrument (stage 1), we generated the items of the questionnaire from the qualitative data obtained from 2 purposive samples of 12 men and 12 women (discussed in detail in our previous studies) (18,19). Inclusion criteria were 1) being 65 years old or older, 2) living independently in an urban area (San Juan) of Puerto Rico, 3) not receiving home health care services, 4) reporting difficulty with 1 or more ADL, and 5) not having a severe cognitive impairment (indicated by a score of ≥12 on the Cabán Mini-mental Examination). We used direct contact with older adults known to the researchers to recruit participants. Those eligible were invited to participate in semi-structured interviews to explore the strategies they used to manage their physical function difficulties in ADL and/or IADL.

To conduct the expert content validation of the Spanish version of the SF-DLAQ in stage 2 (expert judgement), we recruited a purposive sample of 1 expert in instrument development and 8 aging experts. The inclusion criteria were 1) being being 21 years old or older and 2) having at least 3 years of experience providing direct rehabilitation services to Hispanic older adults in his or her area of expertise (aging and rehabilitation, the provision of rehabilitation services, or the provision of health care). The participating experts in aging consisted of 6 female occupational therapy professionals and 2 gerontologists (1 male and 1 female).

Participants were recruited through direct contact by email from acquaintances of the principal investigator, all from the metropolitan area of San Juan, Puerto Rico, from March 1, 2020, through June 15, 2020. The email included the consent form, an information letter, and the content validity ratio exercise form. Inclusion criteria were confirmed by email by the principal investigator (PI). The participants also sent the signed informed consent to the PI by email.

Instruments

To design the instrument (stage 1), 2 tables of specifications were created to determine the content domain of the questionnaire (20). Table 1 displays the statements of the older adults and each one's applicable DSM strategy (organized in rows), with the strategies concerning the domains of the person, environment, and occupation being organized in columns. Table 2 displays the items concerning the DSM strategies identified in previous self-management instruments (organized in rows), with the strategies concerning the domains of the person, environment, and occupation being organized in columns.

For stage 2 (expert judgement), the researchers developed a content validity index assesment (CVI-A form to assess 2 kinds of CVI: item-level CVI (I-CVI) and scale-level CVI (S-CVI) (21–25). This form included information pertaining to 1) the overall aim of the study; 2) the instructions for rating each item; and 3) the conceptual definitions of

Table 1. Specification of statements of older adults with examples within each domain

Environment-related strategies					
Participant statement	**Practical social support**	**Assistive technology**	**Physical environment modification**		
"I tie my shoes, but with great difficulty. My wife is the one who helps me with a lot of those daily tasks."	X				
Occupation-related strategies					
Participant statement	**Alternating task performance**	**Activity pacing**	**Stop doing the activity**	**Simplifying daily tasks**	**Decreasing Bbody stress**
"Now I have to sit down so I can put on and tie my shoes."	X				X
Person-related strategies					
Participant statement	**Perseverance**	**Spirituality**	**Motivation to maintain independence**	**Positive attitude**	
"You have to make an effort to do it, because if I don't do it, I'll make myself useless... Even though my shoulder hurts, I put my arm in through the sleeve and try to get dressed. I will not call someone to dress me."			X		

Table 2. Specification with examples of disability self-management items from self-management instruments

Environment-related items					
Instrument item	**Practical social support**	**Assistive technology**	**Physical environment modification**		
I try to make changes to my home to help me stay independent.			X		
Occupation-related items					
Instrument item	**Alternating task performance**	**Activity pacing**	**Stop doing the activity**	**Simplifying daily tasks**	**Decreasing body stress**
I do activities at a slower pace.		X			
Person-related items					
Instrument item	**Perseverance**	**Spirituality**	**Motivation to maintain independence**	**Positive attitude**	
I pray or meditate.		X			

the construct of DSM strategies as well as the person, environment, and occupation domains, supported with examples. Experts had to rate, on a 4-point ordinal scale (described in Table 3), each questionnaire item for its overall clarity and its relevance to a DSM strategy used by older adults. The form also included additional space for qualitative comments concerning wording, unclear modes of expression, and/or missing aspects.

Study procedures

In stage 1 (instrument design), we first generated the instrument items and then developed the instrument. The items were drafted based on older adults' statements indicating a DSM strategy that were extracted directly from text obtained in our previous studies (18,19). We also selected items from existing scales, said items specifically pertaining to the self-management of functional disabilities.

To develop the instrument, the researchers we used published guidelines on how best to write the items, construct response anchors, and select the response options for each item (26,27). We wrote the items to adequately represent the DSM strategies using language that older Hispanics could easily understand. To construct clear and unambiguous items, we used the following guiding questions: 1) Is the item's language simple, clear, and comprehensible? 2) Is it as concise and as brief as possible? 3) Does it include only 1 aspect? 4) Is it easy to answer? 5) Does it promote a specific answer? 6) Is it written in a positive manner? 7) Does it include sensitive topics or elements? 8) Is it ambiguous? 9) Does it offer the necessary details to be answered? 10) Does it require the use of memory? 11) Does it adequately represent a self-management strategy?

In stage 2 (assessment), the aging experts rated each item by completing the CVI-A form to determine the questionnaire's CVI. They were also asked to provide their recommendations to improve the items.

Data analysis

For stage 1 (instrument design), the qualitative data were subjected to directed content analysis (28), which was guided by the PEOP model domains (discussed in detail in several of our previous studies) (18,19). We noted all the statements that were specifically touching on a DSM strategy from the results of our analysis and categorized each quotation into the appropriate dimension of the PEOP model's 3 dimensions (Table 1).

For stage 2 (expert judgement), the overall CVI was computed using the I-CVI and the S-CVI (17). The I-CVI was computed as the number of experts giving a rating of *relevant* (combining values 3 and 4 together) for a given item divided by the total number of experts. Values ranged from 0 to 1 (17). An I-CVI greater than 0.79 indicated item relevance, while values between 0.70 and 0.79 suggested a need for revisions. Any value below 0.70 indicated non-relevance and warranted deletion from the questionnaire The S-CVI was calculated using the number of items in the DSM instrument that achieved a rating of *relevant* (combining values 3 and 4 together). To calculate the S-CVI, we used the CVI average method (S-CVI/Ave). The S-CVI/Ave was calculated by taking the sum of the I-CVIs divided by the total number of items. Davis (36) proposes that the percentage of agreement for new instruments should be 80% or higher.

To calculate the modified kappa statistic, we first calculated the probability of chance agreement (Pc) for each item using the following formula: $Pc = [N!/A!\ (N - A)!]^* .5^N$, in which *N* is the number of experts, and A is the number of experts who agree on the relevancy of the item. Then the kappa was computed by entering the Pc and the I-CVI in the following formula: $K = (I\text{-}CVI - Pc)/(1 - Pc)$. The interpretation criteria of the results are as follows: 0.74 is considered excellent, between 0.60 and 0.74 is considered good, and between 0.40 and 0.59 is considered fair (17).

Results

Stage 1: Item development

We created each item's content by converting the participants' Spanish statements, known as "quotations," to codes. The selection of the codes was based on frequency (the number of occurrences of each [similar] quotation) and the agreement of the participants. We extracted 297 quotations used to define the codes. Afterwards, the codes' descriptions were converted into items. For example, "activity pacing" is a code within the domain of occupation and signifies doing an activity at a slower pace, decreasing the frequency of an activity, or taking rest breaks (during an activity). Coming from one of the participants was the following translated quotation, which is an example of the aforementioned code: "Now I do it [clean the house] slower, at my pace." Using that example, the item then became "Because of your current physical condition, do you do your daily activities at a slower pace?" Table 4 provides examples of this conversion process.

We also assessed 10 existing self-management instruments that included some content related to managing difficulties in daily activities (29–38). From the analysis of the items of which these instruments were composed, we extracted a total of 66 possible items that were related to at least 1 DSM strategy within the domain of person, environment, or occupation.

In the item-generation stage, we reduced overlapping and duplications from both the 298 participants' quotes and the 66 possible items from the self-management instruments, resulting in 34 items. Finally, 20 items remained that met the operational definition of the construct of DSM strategies.

Afterwards, we modified 20 items. Several items were simplified by using common terminology and removing excess wording. For example, the following item "Because of your

Table 3. Item-writing ranking scale

Relevance	Clarity
1 = item is not relevant	1 = item is not clear
2 = item is somewhat relevant	2 = item needs some revision
3 = item is quite relevant	3 = item is clear but needs mild revision
4 = item is highly relevant	4 = item is very clear

Note: Adapted from *Developing questionnaires for educational research: AMEE Guide No. 87* by Artino et al., 2014.

Table 4. Question conversion process

Disability self-management theoretical domain	Quotation from hispanic older adult	Qualitative sub-domain	Instrument's item
Occupation	*"I push [the furniture] with my whole body, with my hips, that is, I push a little with my upper body."*	Decreasing body stress	Because of your current physical condition, do you ever push heavy objects with your body instead of pushing a example, with your hands? (For sofa with your body instead of with your hands).
Environment	*"When I get out of a car, of course, I always use my cane. I automatically put it out and it helps me."*	Assistive technology	Because of your current physical condition, do you ever use devices to make daily activities easier for you? (For example, a long handle brush or sponge, a reacher, a wheeled walker, a rubber jar opener, a pill alarm, a shower chair, grab bars, a long-handled shoehorn, an electric can opener) If you use such devices, which one(s) do you use? _____
Person	*"I'm always crying out to God in every moment. I turn to him and ask him to help me [to perform difficult daily activities]."*	Spirituality	Because of your current physical condition, do ever rely on your faith to be able to accomplish difficult activities?

current physical condition, do you ever use the large parts of your body to push heavy objects?" was reworded to become "Because of your current physical condition, do you ever push heavy objects with your body instead of with your hands?" Some items were also modified to ensure that the right number of details were available; therefore, we sometimes added specific words or examples to increase a given item's clarity. For example, the following item "Because of your current physical condition, do you ever alternate between daily activities that you find difficult to perform and easier activities during the day?" was changed to the following: "Because of your current physical condition, do you ever alternate between daily activities that require great effort and those that are less strenuous? (For example, alternating mopping the floor or doing yard work with lighter activities, such as folding clothes.)" To ensure that the participant focused solely on 1 aspect of the question, items with 2 or more options were reconstructed. For example, the following item "Because of your current physical condition, do you ever hold on to a stable chair or table to pick things up from the floor?" was modified to "Because of your current physical condition, do you ever hold on to something stable to pick things up from the floor? (For example, you hold on to chairs or tables.)"

The expert in scale development made several recommendations with respect to the scaling of the items, the forms of the items, and the format of the questionnaire. First, the items were scaled using a 5-point frequency Likert-type scale, with equal-appearing intervals and a neutral midpoint: *always, often, sometimes, rarely, never*. Second, the wording of the items that yielded a yes/no response was changed to wording that corresponded to the scale of the selected questionnaire. For example, the item "Because of your current physical condition, have you stopped doing any or all hard daily activities?" was changed to "Because of your current physical condition, do you ever postpone doing any or all hard daily activities?" Finally, we used Arial, font size 12, and a light grey background on alternating rows to make it easier for the respondent to visually follow the row of text.

Stage 2: Expert judgement

Table 5 shows the I-CVI, S-CVI, and modified kappa calculations for the 20 items in the questionnaire. The CVI scores for the questionnaire's items ranged from 0.875 to 1.0 (the latter indicating complete agreement) for clarity and were 1.0 (complete agreement) for relevancy. The CVI scores at the scale level were 1.0 (complete agreement) for both clarity and relevancy. The kappa statistic was (1.0), complete agreement for each of the 20 items. Sixteen items with CVI scores ranging from 0.875 and 1.0 were modified according to the recommendations of the content experts and the analysis of the research group. For example, the item "Because of your current physical condition, do you ever ask God to help you do your difficult daily activities?" was modified to "Because of your current physical condition, do you ever rely on your faith to be able to accomplish difficult activities?" In this item, the concept of God was changed to faith to make said item more inclusive.

Table 5. Calculation of the I-CVI, S-CVI, and multi-rater Kappa statistic and interpretations.

Item	Clarity	Relevancy		Interpretation
	I-CVI	I-CVI	K	
1	1	1	1	Retained after revision
2	1	1	1	Retained after revision
3	1	1	1	Retained after revision
4	0.875	1	1	Retained after revision
5	0.875	1	1	Retained after revision
6	1	1	1	Retained after revision
7	1	1	1	Retained unchanged
8	0.875	1	1	Eliminated
9	1	1	1	Retained after revision
10	1	1	1	Retained after revision
11	1	1	1	Retained after revision
12	1	1	1	Retained after revision
13	1	1	1	Retained after revision
14	0.875	1	1	Retained after revision
15	1	1	1	Retained unchanged
16	1	1	1	Retained after revision
17	1	1	1	Retained after revision
18	1	1	1	Retained after revision
19	1	1	1	Retained after revision
20	1	1	1	Retained unchanged
S-CVI	1	1		

Note: I-CVI = item-level content validity index; S-CVI = scale-level content validity index; K = multi-rater Kappa statistic.

One item was eliminated, despite having favorable CVI scores, due to the recommendation of one of the experts. The expert believed that the item "Because of your current physical condition, have you stopped doing any or all hard daily activities?" was not viable because the client might use any a strategy to enable him/her to carry out the too-difficult activity. One item was added owing to the recommendation of one of the experts: "Because of your current physical condition, do you do the most difficult daily activities at the time of the day in which you have the most energy?"

After modification, the resulting Spanish version of the SF-DLAQ consisted of 20 items. According to the PEOP model, it is determined that 4 items pertain to the dimensions of person (perseverance, spirituality, motivation to maintain independence, and positive attitude), 5 pertain to the dimension of environment (distributed within the domains of social support, assistive technology, and modifications to the physical environment), and 11 pertain to the dimension of occupation (distributed within the domains of altering task performance, activity pacing, activity planning, taking breaks, alternating heavy tasks with light tasks, and reducing body stress). The scale can be obtained by contacting this article's first author.

Discussion

This study resulted in a 20-item Spanish version of the SF-DLAQ that assesses the domains of person-, environment-, and occupation-related DSM strategies used by Hispanic older adults in the context of community living. The results of the CVI in the present study ensured, from the perspective

of the content experts, the simplicity, clarity, and relevance of the SF-DLAQ. These results demonstrate the importance of following a systematic, evidenced-based approach (16,17) to develop an instrument that is valid in terms of content to direct future research in testing other psychometric properties, such as reliability and construct validity.

Given the importance of expert assessment, having an adequate number of interdisciplinary professionals who were experts in instrument development, as well as having content experts, was essential to determine the content validity of the SF-DLAQ. Expert assessment was especially useful for improving the questionnaire's face validity related to its format and structure, as well as the appropriateness of the items and item wording, their comprehensiveness, and the relevance of those items in terms of their ability to represent the topic, as has been seen in previous studies (39–42).

As professionals maximizing the functioning of older adults in everyday activities, rehabilitation health care workers must be aware of the DSM skills and behaviors of older adults and provide opportunities for enhancing these skills. We believe that the goal of increasing the functioning of older adults in daily living activities is most likely to be achieved by improving patient DSM behaviors, which is an important aspect of rehabilitation interventions. Therefore, the implementation of the SF-DLAQ in clinical practice may make it possible for rehabilitation professionals to use valid, evidence-based tools to guide decision making on the use of DSM behaviors during primary assessments with older adults with functional limitations. Based on the results of a given individual's initial assessment, these professionals will be able to identify the DSM behaviors that need to be targeted as part of that individual's intervention plan; if the intervention is effective, this will result in the enhanced use of DSM behaviors as mediators to achieve the ultimate goal of performance and participation in meaningful occupations.

The results of this study should be interpreted with caution due to limitations posed by participant recruitment and characteristics. The purposive sampling strategy may have resulted in only highly motivated experts participating in the rating process. Furthermore, the results could be gender-biased because the panel of content experts comprised 7 women.

Conclusions

In our study, the SF-DLAQ showed excellent content validity at both the item and scale levels. To the best of our knowledge, this scale is the only DSM behavior instrument in the literature with a focus on assessing the person-, environment-, and occupation-related strategies used by older Hispanics to overcome their physical function difficulties in the performance of daily living activities. However, future studies should be conducted to test the content validity based on the response process from the perspective of older Hispanics with functional limitations as well as testing the SF-DLAQ psychometric properties.

Resumen

Objetivo: No existe ningún instrumento en español que mida las estrategias de automanejo de la discapacidad utilizadas por los adultos mayores con discapacidades físicas para manejar las dificultades que pueden ocurrir en las en las actividades de la vida diaria. Este estudio tuvo como objetivo diseñar y evaluar la validez de contenido de la versión en español de un nuevo Cuestionario de Automanejo de la Función en las Actividades de la Vida Diaria (SF-DLAQ por sus siglas en inglés). Métodos: Se realizó un estudio metodológico guiado por el modelo Persona-Ambiente-Ocupación-Ejecución (PEOP por sus siglas en inglés) para desarrollar el SF-DLAQ. La Etapa 1 se centró en el diseño del cuestionario generado a partir de los datos cualitativos obtenidos de 24 adultos mayores y de 10 escalas existentes de automanejo de enfermedades crónicas. La etapa 2 se centró en la evaluación, la cual consistió en la validación del cuestionario con ocho expertos en envejecimiento utilizando el Índice de Validez del Contenido de los Ítems (I-CVI, por sus siglas en inglés), el Índice de Validez del Contenido de las Escalas (S-CVI, por sus siglas en inglés) y el Estadístico Kappa. Resultados: Todas las puntuaciones obtenidas en la etapa 2 fueron favorables, con los del I-CVI para la claridad que variaron de 0.09 a 1.0, y los de I-CVI para la relevancia, el S-CVI y el kappa todos siendo 1.0. Conclusión: La validez de la escala y de los ítems de la versión en español del SF-DLAQ, está demostrada, pero debe confirmarse con más pruebas.

Acknowledgments

We are indebted to all the participants, without whom this study would not have been possible. We also thank Ana L. Colón-Arce for her important contributions in the translation of the manuscript and Dr. Mary Helen Mays and Bob Ritchie for providing editorial support. The research reported in this publication was supported by the Hispanic Alliance for Clinical and Translational Research of the National Institutes of Health under award number U54GM133807-01A1. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

References

1. Hunter EG, Kearney PJ. Occupational Therapy Interventions to Improve Performance of Instrumental Activities of Daily Living for Community-Dwelling Older Adults: A Systematic Review. Am J Occup Ther. 2018;72(4):7204190050p1-7204190050p9. doi:10.5014/ajot.2018.031062
2. Idler E, Cartwright K. What Do We Rate When We Rate Our Health? Decomposing Age-related Contributions to Self-rated Health. J Health Soc Behav. 2018;59(1):74-93. doi:10.1177/0022146517750137
3. Forjaz MJ, Rodriguez-Blazquez C, Ayala A, et al. Chronic conditions, disability, and quality of life in older adults with multimorbidity in Spain. Eur J Intern Med. 2015;26(3):176-181. doi:10.1016/j.ejim.2015.02.016
4. Hennessy S, Kurichi JE, Pan Q, et al. Disability Stage is an Independent Risk Factor for Mortality in Medicare Beneficiaries Aged 65 Years and Older. PM R. 2015;7(12):1215-1225. doi:10.1016/j.pmrj.2015.05.014

5. Musich S, Wang SS, Ruiz J, Hawkins K, Wicker E. The impact of mobility limitations on health outcomes among older adults. Geriatr Nurs. 2018;39(2):162-169. doi:10.1016/j.gerinurse.2017.08.002
6. Ferrante LE, Pisani MA, Murphy TE, Gahbauer EA, Leo-Summers LS, Gill TM. Functional trajectories among older persons before and after critical illness. JAMA Intern Med. 2015;175(4):523-529. doi:10.1001/jamainternmed.2014.7889
7. Forman-Hoffman VL, Ault KL, Anderson WL, et al. Disability status, mortality, and leading causes of death in the United States community population. Med Care. 2015;53(4):346-354. doi:10.1097/MLR.0000000000000321
8. Pendleton H, Schultz-Krohn W. Pedretti's Occupational Therapy: Practice Skills for Physical Dysfunction. 8th ed. Elsevier/Mosby; 2017.
9. Quinn TJ, Langhorne P, Stott DJ. Barthel index for stroke trials: development, properties, and application. Stroke. 2011;42(4):1146-1151. doi:10.1161/STROKEAHA.110.598540
10. Shelkey M, Wallace M. Katz Index of Independence in Activities of Daily Living (ADL). Director. 2000;8(2):72-73.
11. Graf C. The Lawton instrumental activities of daily living scale. Am J Nurs. 2008;108(4):52-63. doi:10.1097/01.NAJ.0000314810.46029.74
12. Tuntland H, Aaslund MK, Langeland E, Espehaug B, Kjeken I. Psychometric properties of the Canadian Occupational Performance Measure in home-dwelling older adults. J Multidiscip Healthc. 2016;9:411-423. Published 2016 Sep 1. doi:10.2147/JMDH.S113727
13. Gruber-Baldini AL, Velozo C, Romero S, Shulman LM. Validation of the PROMIS® measures of self-efficacy for managing chronic conditions. Qual Life Res. 2017;26(7):1915-1924. doi:10.1007/s11136-017-1527-3
14. Christiansen C, Baum C, Bass JD. Occupational Therapy: Performance, participation, and well-being. 4th ed. Slack, Incorporated; 2015.
15. Portney LG. Foundations of Clinical Research: Applications to Evidence-Based Practice. 4th ed. F. A. Davis Company; 2020.
16. Artino AR Jr, La Rochelle JS, Dezee KJ, Gehlbach H. Developing questionnaires for educational research: AMEE Guide No. 87. Med Teach. 2014;36(6):463-474. doi:10.3109/0142159X.2014.889814
17. Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar AR. Design and Implementation Content Validity Study: Development of an instrument for measuring Patient-Centered Communication. J Caring Sci. 2015;4(2):165-178. Published 2015 Jun 1. doi:10.15171/jcs.2015.017
18. Orellano-Colón EM, Abdalla-Mukhaimer N, Rodríguez-Ramos BA, et al. Self-management strategies used by older Hispanic women to overcome functional disabilities. Phys Occup Ther Geriatr. 2020;39(1):41-69. https://doi.org/10.1080/02703181.2020.1788691
19. Orellano-Colón EM, Goff-Molina ND, Ferré-Martínez AC, et al. Understanding the Multilevel Disability Self-Management Strategies of Puerto Rican Older Men. Phys Occup Ther Geriatr. 2021;39(4):325-353. doi:10.1080/02703181.2021.1880530
20. Newman I, Lim J, Pineda F. Content validity using a mixed methods approach: Its application and development through the use of a table of specifications methodology. J Mix Methods Res. 2013;7(3):243-260. https://doi.org/10.1177/1558689813476922
21. Bowling A. Research Methods in Health: Investigating Health and Health Services. Open University Press; 1997.
22. Lynn MR. Determination and quantification of content validity. Nurs Res. 1986;35(6):382-385.
23. Davis L. Instrument review: Getting the most from a panel of experts. Appl Nurs Res. 1992;5(4):194-197. https://doi.org/10.1016/s0897-1897(05)80008-4
24. Grant JS, Davis LL. Selection and use of content experts for instrument development. Res Nurs Health. 1997;20(3):269-274. doi:10.1002/(sici)1098-240x(199706)20:3<269::aid-nur9>3.0.co;2-g
25. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. Res Nurs Health. 2007;30(4):459-467. doi:10.1002/nur.20199
26. DeVellis RF. Scale development: Theory and applications. 2nd ed. SAGE Publications; 2003.
27. Fowler FJ. Survey research methods. 4th ed. SAGE Publications; 2009.
28. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res. 2005;15(9):1277-1288. doi:10.1177/1049732305276687
29. Guo L, Söderhamn U, McCallum J, et al. Testing and comparing two self-care-related instruments among older Chinese adults. PLoS One. 2017;12(8):e0182792. Published 2017 Aug 9. doi:10.1371/journal.pone.0182792
30. Ausili D, Barbaranelli C, Rossi E, et al. Development and psychometric testing of a theory-based tool to measure self-care in diabetes patients: the Self-Care of Diabetes Inventory. BMC Endocr Disord. 2017;17(1):66. Published 2017 Oct 16. doi:10.1186/s12902-017-0218-y
31. Mendoza T, Mayne T, Rublee D, Cleeland C. Reliability and validity of a modified Brief Pain Inventory short form in patients with osteoarthritis. Eur J Pain. 2006;10(4):353-361. doi:10.1016/j.ejpain.2005.06.002
32. Schmitt A, Gahr A, Hermanns N, Kulzer B, Huber J, Haak T. The Diabetes Self-Management Questionnaire (DSMQ): development and evaluation of an instrument to assess diabetes self-care activities associated with glycaemic control. Health Qual Life Outcomes. 2013;11:138. Published 2013 Aug 13. doi:10.1186/1477-7525-11-138
33. Veldman K, Reijneveld SA, Lahr MMH, Uittenbroek RJ, Wynia K. The Partners in Health scale for older adults: design and examination of its psychometric properties in a Dutch population of older adults. Health Expect. 2017;20(4):601-607. doi:10.1111/hex.12488
34. Ghahari S, Khoshbin LS, Forwell SJ. The multiple sclerosis self-management scale: clinicometric testing. Int J MS Care. 2014;16(2):61-67. doi:10.7224/1537-2073.2013-019
35. Koirala B, Budhathoki C, Dennison-Himmelfarb CR, Bhattarai P, Davidson PM. The Self-Care of Heart Failure Index: A psychometric study. J Clin Nurs. 2020;29(3-4):645-652. doi:10.1111/jocn.15119
36. García FE, Barraza-Peña CG, Wlodarczyk A, Alvear-Carrasco M, Reyes-Reyes A. Psychometric properties of the Brief-COPE for the evaluation of coping strategies in the Chilean population. Psicol Reflex Crit. 2018;31(1):22. Published 2018 Aug 3. doi:10.1186/s41155-018-0102-3
37. Oh H, Han S, Kim S, Seo W. Development and Validity Testing of an Arthritis Self-Management Assessment Tool. Orthop Nurs. 2018;37(1):24-35. doi:10.1097/NOR.0000000000000415
38. Gitlin LN, Hauck WW, Dennis M, et al. Physical function and depressive symptomatology in frail elders: The importance of function-oriented control strategies and resignation. Paper presented to the Gerontological Society of Aging, November 21, 2005.
39. Egger-Rainer A. Determination of Content Validity of the Epilepsy Monitoring Unit Comfort Questionnaire Using the Content Validity Index. J Nurs Meas. 2018;26(2):398-410. doi:10.1891/1061-3749.26.2.398
40. Murphy MC, Somerville E, Keglovits M, Hu YL, Stark S. In-Home Medication Management Performance Evaluation (HOME-Rx): A Validity Study. Am J Occup Ther. 2017;71(4):7104190020p1-7104190020p7. doi:10.5014/ajot.2017.022756
41. Rodrigues IB, Adachi JD, Beattie KA, MacDermid JC. Development and validation of a new tool to measure the facilitators, barriers and preferences to exercise in people with osteoporosis. BMC Musculoskelet Disord. 2017;18(1):540. Published 2017 Dec 19. doi:10.1186/s12891-017-1914-5