Research Article

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The Development and Evidence of Psychometric Properties of The Self-Care Actions Scale Focusing on The Daily Life Instrumental Activities

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Abstract

Introduction
Human aging can indicate functional capacity, with Instrumental Activities of Daily Living as one of its representatives.

Objective
To develop the Self-Care Actions Scale focusing on the Daily Life Instrumental Activities (SCAS-DLIA) and analyze its psychometric properties.

Method
This was a methodological, descriptive, and analytical study. The sample consisted of 1200 interviewees of both sexes, aged 70 years or older, residents of cities in southern Minas Gerais in Brazil. The instruments used were the following: Instrument for the description of baseline conditioning factors of elderly people, SCAS-DLIA, and the Self-Care Capacity Assessment Scale.

Results
The SCAS-DLIA consisted of 21 items and three domains, namely: Household activities (α Cronbach = 0.985), Transportation, business and health activities (α Cronbach = 0.9146), and Phone communication activities (α Cronbach = 0.835). Convergent validity was satisfactory as it presented a positive and significant correlation ($p \leq 0.001$). For the discriminant validation, the comparative analyses of the sociodemographic variables with the SCAS-DLIA were used, presenting a level of significance between them, which demonstrated discriminative power.

Conclusion
The scale developed has demonstrated adequate reliability and validity for the Brazilian context.

Keywords: Aging, Elderly, Daily Activities, Validation Study

1. Introduction

Functional capacity is a set of physical and mental abilities essential to perform daily life activities without the need for external resources. Such situations, for the elderly, are extremely important, as they are related to their ability to perform daily activities and make decisions. In other words, the individual can perform their activities with autonomy and independence. Physical activities inherent to the daily life activities represent a primary way to avoid, minimize, and/or reverse most of the functional, social, and psychological declines that often affect the elderly [1-3].

In this context, daily life activities are classified into three types. Daily Life Basic Activities (DLBAs) are the daily life and self-care tasks related to the survival of elderly people. Daily Life Instrumental Activities (DLIAs) are those related to the maintenance of life in the community or the support of life in society. Finally, the Daily Life Advanced Activities (DLAAs) are the actions involving cognitive capacity and reflection on several daily situations, rendering them more complex in scope [4].

Among these types of activities, the daily life instrumental activities should be highlighted, as they are closely related to

elderly people's adaptive activities to the environment in which they live. These abilities are necessary for an independent life, and are usually learned during adolescence. Examples of DLIAs include being able to use the phone, use transportation, go shopping, prepare meals, perform household chores, use medications, and manage money [5].

It is known that the DLIAs are part of the Self-Care Deficit Nursing Theory (SCDNT). One of the central concepts of the SCDNT is named self-care actions, which consist of practices or activities that people initiate and perform deliberately and for their own benefit with the purpose of maintaining life, health, and well-being (quality of life). Self-care practices are learned and demonstrated behaviors and are determined by a number of factors, including the cultural background of the community to which one belongs. This ability is developed through health education, which is an essential component of nursing care and is directed to the promotion, maintenance, and restoration of health and disease prevention [6]. The self-care actions are influenced by the Self-Care Capacities (SCC).

In the literature, Lawton's scale is widely used for research on the measurement of instrumental activities, and no other similar scales have been found in the context of DLIAs investigations [7]. This scale evaluates seven instrumental activities, namely: being able to use the phone, use means of transportation, go shopping, perform household chores, prepare meals, take medications, and manage finances. This instrument consists of questions directed to elderly people, enabling a qualitative assessment of the functional capacity in the context of DLIAs. It is also noteworthy that it lacks an established cutoff point [8].

Regarding its concurrent validation and reliability by stability to the Brazilian context, a quite small sample was used, consisting of only 16 elderly women [9].

Both concepts, DLIAs and self-care, are closely related and associated. However, there is no self-care actions scale that measures the daily life instrumental activities of elderly people as far as it is known. The creation of a new scale focusing on DLIAs is justified by the following factors:
• The SCAS-DLIA is a new option for researchers and for practitioners who use the assessment of DLIAs in clinical practice.
• This scale is of a more complete nature as it involves 21 items and three domains (Household Activities; Transportation, Business, and Health Activities; Phone Communication Activities).
• The present scale is of Brazilian origin, meeting the cultural health needs of its elderly people.
• Lawton's Scale consists of seven items as previously stated and was adapted to the Brazilian context, but it lacks domains, which completely differs from the scale used in the present study.

Therefore, the development and validation of a scale will be a resource for research in this area at the interdisciplinary level, as well as for the nursing care process from the perspective of self-care assessment and daily life activities. In the context of aging, the practice of self-care actions focusing on DLIAs is extremely important and meaningful. In addition, the new knowledge stemming from this research regarding DLIAs

associated with self-care is unprecedented, thus providing new knowledge and conceptions in this area. The present study aimed to develop an instrument to evaluate Instrumental Activities of Daily Living through the Self-Caught Actions Scale with a focus on Instrumental Activities of Daily Living (SCAS-CLIA), in addition to analyzing its psychometric properties.

2. Method
2.1 Development of the Self-Care Actions Scale Focusing on the Daily Life Instrumental Activities (SCAS-DLIA)
To develop the Self-Care Actions Scale focusing on the Daily Life Instrumental Activities (SCAS-DLIA), a literature review on the Daily Life Instrumental Activities was initially carried out. For this purpose, the following authors were selected: Formulário de Avaliação de Dependência no Autocuidado - FADA (Self-care dependence assessment form - SCDAF) 2016, Núcleo de Estudo de Geriatria da Sociedade Portuguesa de Medicina Interna – GERMI (Geriatrics Study Center of the Portuguese Society of Internal Medicine – GERMI) sd [10-23].

Regarding the use of the Self-Care Deficit Nursing Theory in the development of the aforementioned scale, the following authors were selected [24-35].

From the Self-Care Deficit Nursing Theory (SCDNT), the following concepts were selected: 1- Self-care actions and self-care capacities, considering these two concepts interrelated, as stated by Orem (2006); 2- Therapeutic demand for self-care.

The self-care actions were represented by the DLIAs. These items were elaborated based on the literature review regarding health promotion, functional capacity, and active aging, whose authors have already been mentioned above, in addition to using the following functional capacity scales: Katz Index; Barthel's Scale; Lawton and Brody's Scale; Extended instrument for socio-functional assessment in the elderly (EISFAE), FADA GERMI, which is a document of the Núcleo de Estudos de Geriatria da Sociedade Portuguesa de Medicina Interna (Geriatrics Study Center of the Portuguese Society of Internal Medicine), which addresses a wide geriatric assessment, containing the most diverse instruments of this nature, and the inventory and list found in the literature on DLIAs. All the documents that were used as a basis or rationale for the elaboration of the aforementioned scale have been previously presented.

The DLIAs offer the following response options: "without help (1 point)"; "with partial help (2 points)" and "with help (3 points)". The reason that led to the selection of these options was to verify the person's level of ability to perform the activity independently or dependently. The scale was developed based on the following three domains: 1) Household activities; 2) Transportation, Business, and Health Activities; and 3) Phone Communication Activities. The items for each domain were created based on the concepts of self-care abilities and actions within the SCDNT. It is also worth noting that each item is presented in the perspective of Daily Life Instrumental Activities.

After performing the previous procedures, the first version of the Self-Care Actions Scale focusing on the Daily Life Instrumental Activities (SCAS-DLIA) was developed. Then, the analysis of

the version developed was carried out, as follows: 1) construct relevance and 2) semantic, idiomatic, conceptual, and cultural analysis. For these analyses, the Focus Group (FG) technique was used [36].

Six professors from the Vale do Sapucaí University (UNIVAS), Pouso Alegre, MG, were invited to compose the Judges' FG, two of them are Nursing professors, with knowledge of the Self-Care Deficit Nursing Theory, and four are from other areas, but with knowledge and experience in Gerontology. This group evaluated, discussed, and provided opinions on each of the SCAS-DLIA items, until consensus was reached among all who were present. To accomplish this task, the selected judges were experts in the subject matter, since they had the task of judging whether or not the items were related to the construct. A number of six judges is sufficient for this judgment, and there should be at least 80% agreement between them for each item [37]. All participants were informed of the FG session and all their doubts were addressed, and they signed the Informed Consent Form (ICF).

To carry out the semantic analysis, the FG consisted of 14 participants, both male and female, aged 60 or older, residents of Itajubá, MG, with three of them having a level of education equivalent to incomplete and complete elementary school (three participants from each of the two levels), and another two participants for each of the following levels of education: incomplete and complete high school; incomplete and complete higher education. As with the previous FG, all participants were briefed on the FG session, and all of their questions were answered. This analysis has the purpose of verifying that all items are understandable to all members of the target population.

Two FG sessions were held for the Elderly People Group that contributed to the semantic analysis. The FG moderator was the first author of the present study, with the assistance of two professors and two Master's students in Bioethics.

2.2 Study Design, Study Participants, Sample and Sampling
The present study was methodological, descriptive, and analytical. Data collection was carried out with elderly people aged 70 or older, of both sexes, and who lived in their homes in the cities of Itajubá, Piranguinho, Pouso Alegre, and Santa Rita do Sapucaí, all located in the state of Minas Gerais (MG). They were reached in their homes, workplaces, squares, churches, and other places that were suitable, according to their choice. The sample size consisted of 1200 interviewees, distributed as follows in the mentioned cities: 450 elderly people in Itajubá, 100 in Piranguinho, 650 in Pouso Alegre (400 interviewees from the community, and 200 hospitalized in the several units of a university hospital in the city), and 200 in Santa Rita do Sapucaí.

The criterion used to establish the size of the sub-samples was the number of elderly people per city. The number of participants in this study was also calculated to obtain stable factorial solutions. For this purpose, the criterion "items/subject ratio" was used. According to Pasquali (2010), a minimum ratio of five to one regarding the sample size and the number of items of the scale is necessary for an appropriate assessment of the psychometric characteristics that can be identified from the factor analysis.

The scale which was developed consisted of 21 items, using approximately 57 participants per item. The sampling was of the non-probability type by convenience or accidental and "snowball" type.

2.3 Inclusion and Exclusion Criteria
The following inclusion criteria were adopted: elderly people with preserved cognitive and communication capacities (which was assessed by applying the Mental Assessment Questionnaire) and only those who lived in the community. Elderly people who were frail and bedridden were excluded.

2.4 Data Collection
For data collection, the following research instruments were used: 1 – Characterization instrument of the basic conditioning factors of elderly people (CIBCFEP). This instrument was developed by Silva & Reis (2020) and characterizes the elderly through a profile of their socio-demographic aspects, such as age, sex, marital status, religion, occupation, and so on. It is composed of open and closed questions; 2 – Self-Care Actions Scale focusing on the Daily Life Instrumental Activities (SCAS-DLIA), which was based on Orem's Self-Care Deficit Nursing Theory, specifically on the concepts of capacities and self-care actions. It consists of three domains, namely: Household Activities, Transportation, Business, and Health Activities, and Phone Communication Activities. The SCAS-DLIA consists of 21 items with the following response options: with help (1 point), with partial help (2 points), and without help (3 points). In this context, the minimum score corresponds to 21, and the maximum score to 63 points, knowing that the highest score indicates better practices or participation in Daily Life Instrumental Activities; and 3 – Self-Care Capacities Assessment Scale (SCCAS), which obtained evidence of psychometric properties suitable for the Brazilian context It consists of 24 items, with the following response options: strongly disagree (1 point), disagree (2 points), neither agree nor disagree (3 points), agree (4 points), and strongly agree (5 points). The minimum score is 24, and the maximum is 120 points. The closer to 120 points, the better the self-care capacities are, and the closer to 24, the worse the mentioned capacities are. This instrument was used for convergent validity.

2.5 Pilot Study
To carry out the pilot study, 5% of the total sample was used, which corresponded to 70 elderly people living in Itajubá, MG. The participants in this study were not part of the final sample, but met the inclusion criteria. They had no difficulty understanding the items.

2.6 Data Analysis
For data collection, a database was prepared and "fed" using the SPSS (Statistical Package for the Social Sciences) computer software, version 22.0. Regarding data analysis strategies, descriptive statistics were used (frequency and percentage for categorical variables), and measurements of central tendency and dispersion for numerical or continuous variables.

The following statistical procedures were also used in the present study:

- Exploratory Factor Analysis (main axes) refers to a static procedure designed to remove or maintain definitive items for a given scale, considering their factorial loading. With varimax rotation, the dynamics of the domains and items were verified regarding their permanence or not as integral elements of the Instrumental Activities of Daily Living Scale. The requirements for keeping the item in the scale were as follows: factor load = 0.6, however, the clinical aspect of the item in question was also considered, as well as the analysis of Cronbach's alpha. That is, the alpha was analyzed according to the item's presence. If the item interfered positively in the alpha result, it was kept or vice-versa. The KMO (Kaiser Meyer Olkin) test was used to measure the suitability of using the Factor Analysis and Bartlett's sphericity test was used to measure whether the Factor Analysis was suitable for the problem in question.

- Regarding the concept of validation, it refers to how valid an instrument is for a given construct. Internal consistency refers to the assessment of how reliable the scale is, that is, whether it is really measuring what it purports to be.To verify the reliability concerning the internal consistency of the SCAS-DLIA, in total and in its domains, Cronbach's alpha was used. The minimum acceptable value for the alpha was 0.7 or higher [38-40].

- Convergent validation is based on the association of two instruments referring to the same concept or two instruments with different concepts that are correlated according to the researcher's assessment. For convergent validation, the Spearman correlation index was used, which is a statistical test used when there is no normal distribution between the data. The discriminant validation was developed through non-parametric tests (Mann-Whitney and Kruskal-Wallis) using the comparative analysis of the variables: education, health assessment, physical activity, social activity, and disability or physical impairment, with the SCAS-DLIA.

The correlation value between the variables obtained the following classification, according to the categories: for r values ranging from 0.00 to 0.19 the correlation was considered quite weak; for r values ranging from 0.20 to 0.39 the correlation was considered weak; for r values ranging from 0.40 and 0.69 the correlation was considered moderate, for r values ranging from 0.70 to 0.89 the correlation was considered strong, and, finally, r values ranging from 0.90 to 1.00 suggested a quite strong correlation [41]. The significance level adopted was equal to or lower than 0.05 (5%).

2.7 Ethical Research Aspects

In the present study, the ethical aspects were considered according to Resolution 466/12, 2012, of the National Health Council (NHC), from the Ministry of Health, which addresses Human-to-Human Ethics. The present study was approved by the Research Ethics Committee (REC) of the Vale do Sapucaí University, under consubstantiated opinion no. 2,734,851 of 2018.

3. Results

Regarding the participants' sociodemographic characteristics, it was found that: 58.5% of them were female; 88.3% were under 85 years old; 38.0% were married; 61.2% had complete or incomplete elementary school education; 39.2% considered themselves to be in good health; 58.0% did not practice physical activities; 96.1% participated in social activities, and 82.3% did not have any disabilities or physical impairments.

Data related to the exploratory Factor Analysis, internal consistency, and the convergent and discriminant validities of the SCAS-DLIA are presented below. To study the suitability of applying the Factor Analysis, the KMO test was carried out, and the value found was 0.944 (suitable when > 0.5). Bartlett's sphericity test was also carried out, which is suitable when significant ($p <= 0.05$). The p-value found was <0.001. Both tests showed that the Factor Analysis was suitable for the data collected.

Items		Factor Loadings		
		1	2	3
1	I take care of my household	0.807	0.355	0.134
2	I do light housework (I wash the dishes and tidy the beds, and so on).	0.863	0.314	0.138
3	I organize, prepare, cook, and serve meals.	0.911	0.274	0.126
4	I prepare, cook, and serve meals.	0.911	0.276	0.124
5	I prepare (cook) meals.	0.918	0.265	0.115
6	I heat and serve meals.	0.902	0.238	0.080
7	I tidy up the kitchen (dishes, stove, table, floor, and so on).	0.899	0.283	0.144
8	I take care of my clothes.	0.880	0.292	0.111
9	I take care of all the clothes in the household.	0.882	0.295	0.133
10	I take care of light clothes.	0.880	0.289	0.140
11	I take the shuttle bus.	0.289	0.587	0.287
12	I take trips.	0.172	0.737	0.185
13	I go shopping.	0.342	0.748	0.163
14	I bring my shopping bags home.	0.317	0.743	0.165
15	I manage my money.	0.223	0.704	0.107

16	I go to the bank to manage my money.	0.150	0.733	0.185
17	I prepare and take my medications in the correct dose and on time.	0.320	0.704	0.029
18	I manage my medications so that they don't run out.	0.282	0.733	0.024
19	I go to the scheduled medical appointments.	0.239	0.761	0.148
20	I make phone calls.	0.168	0.315	0.853
21	I answer the phone.	0.207	0.229	0.867

Source: SCAS-DLIA (2021).

Table 1: Items with their Respective Factor Loadings and Variable Groupings

According to Table 1, it was recommended that for this scale all items were closed, without any exclusion and that the items were grouped into three different sets, with each set having its own name, which refers to Domestic Activities, Transport, Activities business and healthcare and telephone communication activities. Therefore, the SCAS-DLIA scale was formed by three factors or domains and 21 items.

Itens		Factor Loadings			Cronbach's Alpha coefficient	95% Confidence
		1	2	Interval		
1	I take care of my household	0.807	0.355	0.134	0.985	(0.894 ; 0.986)
2	I do light housework (I wash the dishes, and tidy the beds and so on).	0.863	0.314	0.138		
3	I organize, prepare, cook, and serve meals.	0.911	0.274	0.126		
4	I prepare, cook, and serve meals.	0.911	0.276	0.124		
5	I prepare (cook) meals.	0.918	0.265	0.115		
6	I heat and serve meals.	0.902	0.238	0.080		
7	I tidy up the kitchen (dishes, stove, table, floor, and so on).	0.899	0.283	0.144		
8	I take care of my clothes.	0.880	0.292	0.111		
9	I take care of all the clothes in the household.	0.882	0.295	0.133		
10	I take care of light clothes.	0.880	0.289	0.140		
11	I take the shuttle bus.	0.289	0.587	0.287	0.916	(0.908 ; 0.923)
12	I take trips.	0.172	0.737	0.185		
13	I go shopping.	0.342	0.748	0.163		
14	I bring my shopping bags home.	0.317	0.743	0.165		
15	I manage my money.	0.223	0.704	0.107		
16	I go to the bank to manage my money.	0.150	0.733	0.185		
17	I prepare and take my medications in the correct dose and on time.	0.320	0.704	0.029		
18	I manage my medications so that they don't run out.	0.282	0.733	0.024		
19	I go to the scheduled medical appointments.	0.239	0.761	0.148		
20	I make phone calls.	0.168	0.315	0.853	0.835	(0.815 ; 0.853)
21	I answer the phone.	0.207	0.229	0.867		
Total score					0.959	

Source: SCAS-DLIA (2021).

Table 2: Domains and their Respective items in the SCAS-DLIA, Factor Loadings, and Cronbach's Alpha Coefficient

As all items stemming from the scale were adopted in the exploratory factor analysis, there was no need for clinical evaluation for their removal or maintenance. To verify the Domains' internal consistency, Cronbach's Alpha coefficient was adopted, and reliability was considered satisfactory for values equal to or above 0.7. These values are presented in Table 2, as well as the confidence interval.

		Age		Mann-Whitney test (p)	Education							Kruskal-Wallis test (p)	Results	Physical activity		Mann-Whitney test (p)
		≤ 85	86+		(1)	(2)	(3)	(4)	(5)	(6)	(7)			Yes	No	
Domain 1: Household activities	Mean	27.8	25.1	<0.001	27.0	27.3	27.2	28.1	28.0	27.3	28.4	0.062	*	28.3	26.9	<0.001
	Median	30.0	30.0		30.0	30.0	30.0	30.0	30.0	30.0	30.0			30.0	30.0	
	Standard deviation	4.8	6.7		5.5	5.4	5.3	4.8	4.7	6.0	4.0			4.0	5.8	
	N	1060	140		109	600	134	49	130	13	165			505	695	
Domain 2: Transportation, Business, and Health Activities	Mean	24.0	20.3	<0.001	21.2	23.3	22.3	24.1	24.9	25.9	25.6	<0.001	**	24.7	22.7	<0.001
	Median	26.0	21.0		23.0	25.0	24.0	26.0	27.0	27.0	27.0			26.0	25.0	
	Standard deviation	4.2	5.4		5.5	4.4	5.0	4.7	3.4	2.4	2.7			3.4	5.0	
	N	1060	140		109	600	134	49	130	13	165			505	695	
Domain 3: Phone Communication Activities	Mean	5.5	5.1	0.001	5.0	5.3	5.3	5.7	5.7	5.7	5.8	<0.001	***	5.6	5.3	0.001
	Median	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0			6.0	6.0	
	Standard deviation	1.1	1.3		1.3	1.2	1.2	0.8	0.8	1.1	0.7			1.0	1.2	
	N	1060	140		109	600	134	49	130	13	165			505	695	
Escore total	Mean	57.3	50.5	<0.001	53.2	55.9	54.8	57.9	58.6	58.9	59.8	<0.001	***	58.6	55.0	<0.001
	Median	61.0	54.0		56.0	60.0	59.0	62.0	62.0	63.0	63.0			62.0	60.0	
	Standard deviation	8.6	11.7		10.4	9.6	9.9	9.6	7.6	7.8	6.2			7.0	10.4	
	N	1060	140		109	600	134	49	130	13	165			505	695	

*None/Cannot read or write = Incomplete elementary school = Complete elementary school = Incomplete high school = Complete high school = Incomplete higher education = Complete higher education.

**None/Cannot read or write < Incomplete elementary school = Complete elementary school < Incomplete high school = Complete high school = Incomplete higher education = Complete higher education.

***None/Cannot read or write = Incomplete elementary school = Complete elementary school < Incomplete high school = Complete high school = Incomplete higher education = Complete higher education.

Source: SCAS-DLIA (2021).

Table 3: Sociodemographic Characteristics (Age, Education, Physical Activity) Related to the SCAS-DLIA

		Health assessment						Kruskal-Wallis test (p)	Result	Chronic non-communicable disease		Mann-Whitney test (p)	Physical disability or impairment		Kruskal-Wallis test (p)
		Excellent	Quite good	Good	Regular	Bad	Quite bad			Yes	No		Yes	No	
Domain 1: Household activities	Mean	28.9	27.8	28.0	26.0	23.5	23.1	<0.001	*	27.3	28.2	0.014	23.8	28.3	<0.001
	Median	30.0	30.0	30.0	30.0	30.0	30.0			30.0	30.0		29.0	30.0	
	Standard deviation	3.6	4.7	4.5	6.4	7.5	8.7			5.4	4.3		7.5	4.0	
	N	177	266	470	239	31	16			914	286		212	988	
Domain 2: Transportation, Business, and Health Activities	Mean	25.2	24.3	23.6	22.3	19.6	18.1	<0.001	**	23.3	24.4	<0.001	19.7	24.4	<0.001
	Median	27.0	26.0	25.0	24.0	21.0	16.0			25.0	26.0		20.5	26.0	
	Standard deviation	2.9	3.8	4.2	5.2	6.6	7.2			4.6	3.8		5.6	3.7	
	N	177	266	470	239	31	16			914	286		212	988	
Domain 3: Phone Communication Activities	Mean	5.7	5.5	5.4	5.3	4.5	4.9	<0.001	***	5.4	5.5	0.121	4.9	5.5	<0.001
	Median	6.0	6.0	6.0	6.0	5.0	6.0			6.0	6.0		6.0	6.0	
	Standard deviation	0.8	1.1	1.1	1.2	1.6	1.3			1.1	1.1		1.4	1.0	
	N	177	266	470	239	31	16			914	286		212	988	
Total score	Mean	59.8	57.6	57.0	53.6	47.7	46.2	<0.001	***	56.0	58.1	<0.001	48.5	58.2	<0.001
	Median	62.0	61.0	61.0	59.0	49.0	49.5			60.0	62.0		52.0	61.0	
	Standard deviation	5.8	8.2	8.2	11.2	13.6	15.5			9.6	7.9		12.9	7.2	
	N	177	266	470	239	31	16			914	286		212	988	

*Excellent = Quite good = Good > Regular = Bad = Quite bad
**Excellent = Quite good = Good > Regular > Bad = Quite bad
***Excellent = Quite good = Good = Regular > Bad = Quite bad
Source: SCAS-DLIA (2021).

Table 4: Sociodemographic Characteristics (Health Assessment, Chronic Non-Communicable Disease, Disability or Physical Impairment) Related to the SCAS-DLIA

To carry out discriminant validity, the relationship between the sociodemographic and health variables and the SCAS-DLIA was used (Tables 3 and 4). When analyzing the associations between the variables age, education, physical activity, health assessment, chronic non-communicable diseases and disability or physical disability with the scale of instrumental activities of daily living, it was observed that these variables presented with the aforementioned scale level of adequate significance, as the results were lower than 0.05, excepting only education with Domain 1 (Domestic activities). This level of significance between the variables already mentioned and the scale under study confirms that there is discrimination, as for the differences presented between the variables and the scale there is a significant probability (<0.05).

		Score
Domain 1: Household activities	Correlation Coefficient	0.226
	p-value	<0.001
	n	1200
Domain 2: Transportation, Business, and Health Activities	Correlation Coefficient	0.252
	p-value	<0.001
	n	1200
Domain 3: Phone Communication Activities	Correlation Coefficient	0.263
	p-value	<0.001
	n	1200
Total scale	Correlation Coefficient	0.287
	p-value	<0.001
	n	1200

Source: SCAS-DLIA (2021).

Table 5: Spearman's Correlation Between the SCAS-DLIA and SCCAS

As shown in Table 5, for convergent validation, Spearman's Correlation Coefficient was calculated between the SCAS-DLIA and the Self-Care Capacities Assessment Scale (SCCAS). The results showed that the correlations between the domains and the SCAS-DLIA total scale were weak (0.20 to 0.39), but there was statistical significance between the domains and the total scale with the SCCAS, confirming convergent validity.

4. Discussion
In addition to the development, this study also aimed to analyze the psychometric properties of the scale, such as structural validity through Exploratory Factor Analysis, reliability through internal consistency or homogeneity, and the convergent and discriminant validities of the SCAS-DLIA. This study's results evidenced acceptable or adequate psychometric properties. Therefore, it is a valid scale for its intended purposes.

Through the Exploratory Factor Analysis, the SCAS-DLIA scale was structured with 21 items and three domains, entitled: Household Activities (items: 1 to 10), which refer to elderly people's ability to perform daily activities related to the care of their household, such as taking care of the house, cooking food, and tidying clothes; Transportation, Business, and Health Activities (items: 11 to 19) which refer to elderly people's ability to perform social relationship practices such as shopping, banking, and taking their medication daily; and Phone communication activities, which refer to communication with other people using phones and cell phones as resources, involving their ability to make and receive calls, as well as establishing and maintaining conversations on the phone, exemplified by making and answering phone calls (items: 20 to 21).

To assess the measurement model it is common to verify the convergent and discriminant construct validities. In convergent validity, the indicator items of a specific construct should present a high ratio of variance in common reported that construct validity is a judgment on the suitability of conclusions reached based on test scores for individual positions on a variable named construct [42]. This constitutes a comprehensive validity that considers how test scores relate to other scores and measurements, and

how test scores can be interpreted in the sphere of a theory to understand the construct that the test is designed to measure.

For the convergent validation of the scale being studied, Spearman's correlation between the SCAS-DLIA and the SCCAS was used [43]. described that when performing an in-depth study of construct validity, it is important to know whether the instrument evaluated is related to other variables as expected and theoretically indicated. In a correlation between two instruments, regarding convergent validity, it is essential that there is at least a weak correlation between the two scales and a minimum significance level of 0.05. In the present study, although Spearman's correlations were predominantly weak, the level of significance between the two scales was lower than 0.001, indicating a high significance.

Discriminant validity is the extent to which a construct differs from the others. This approach was also used in the present study to assess the construct validity of the SCAS-DLIA. Several contrasting groups were found to have statistically significant differences, which proves that the Daily Life Instrumental Activities differentiates groups that are found to be in different states or situations. Discriminant construct validity refers to the extent to which the scores obtained from the use of an instrument can differentiate individuals or populations where differences are expected, for instance: a person with pain and person without pain. This validity does not require a construct to be correlated with non-similar variables. In this study, there were significant differences between the DLIAs with the following variables: age, education, physical activity, health, chronic non-communicable disease and disability or physical impairment. The results of the work conducted by, regarding the discriminant validation of the Daily Life Advanced Activities Scale to the Brazilian context with the same variables corroborate the present study's data [44]. The study carried out by Silva & Baptista (2016) related to the discriminant validation of Vitor's Quality of Life Scale obtained results similar to those presented here.

From the perspective of reliability, the internal consistency through Cronbach's alpha demonstrated suitable psychometric properties for the use of the SCAS-DLIA, since the total scale and its domains presented values above 0.70. It should be noted that the Alpha value for the total scale was above 0.9, indicating a high internal consistency. In the current literature, regarding the psychometric properties of Lawton's Scale to the Brazilian context, its reliability was found through stability (test-retest), which presented the following results: regarding the stability of the measurements, they can be classified as in almost perfect agreement, both in replicability (Ricc=0.89) and objectivity (Ricc=0.80). Regarding its validation, the concurrent validity was performed through Spearman's correlation index between the scale and physical performance tests regarding the strength endurance of lower and upper limbs. In this case, a moderate relation was found between upper limb strength and the functional condition (rho=0.53 and p=0.034) [45]. In the Portuguese context, the evidence of psychometric properties was as follows: Cronbach's alpha value of 0.909 (original/ dicotomic version) and 0.936 (alternative/polycotomic version); high reliability in both versions, presenting correlations between scale items and the total scale, between r=0.52-0.80 (original

version) and r=0.77-0.86 (alternative version); the convergent validation through Barthel's Index presented final scores of 0.80 and 0.82 for the original and alternative versions, respectively, and p<0.01 for both [46]. The psychometric properties obtained in Portugal using Lawton's Scale showed similar values to the data obtained by the SCAS-DLIA. This demonstrates the reliability and validity of this scale.

The present study was limited to the development and assessment of psychometric properties in elderly people from cities in southern Minas Gerais state. It is known that Brazil is a diverse country, with cultural, social, and leisure diversities across different regions of the country [47-62].

5. Conclusions
The development of the SCAS-DLIA was adequate according to the methodological steps followed. The scale was suitable to the Brazilian context, focusing on elderly people. The scale will be a tool for researchers, filling knowledge gaps regarding self-care actions focusing on Daily Life Instrumental Activities in relation to the aging process. This resource is also destined to the clinical assessment of elderly people in the nursing care process and other interdisciplinary areas dedicated to this subject. The result stemming from this scale will be a guiding compass in the management of research and in the clinical setting.

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