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Review Article

Activity card sort and the occupational repertoire of older adults: an integrative literature review

Activity card sort *e o repertório ocupacional de idosos: uma revisão integrativa da literatura*

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Abstract

Introduction: The Activity Card Sort (ACS) is a tool developed to evaluate the participation of older adults in instrumental, social, and leisure activities of low and high demand. It is a useful assessment tool for the occupational therapeutic process that adopts the occupational-based and client-centered approach. **Objective:** The study analyzed the main characteristics of scientific production in applying the Activity Card Sort in the elderly population. **Method:** It was carried out an integrative literature review. We used six sources of information to select the literature without a time frame. A bibliographic collection record was created to perform a descriptive analysis. The VOSviewer was applied to construct the bibliometric network. **Results:** The sample consisted of 67 articles. The studies examined the instrument's psychometric properties, the use of the ACS to assess the impact of the health conditions in participation and engagement in activities, and the use of the ACS as an outcome measure in different interventions. **Conclusion:** The instrument was an option that enriches the evaluation process in Occupational Therapy. It has good psychometric properties, and it was able to capture the level of participation in different populations and their related factors, as well as it can be used as an outcome measure for interventions that are concerned with engaging in occupations.

Keywords: Occupational Therapy, Aged, Social Participation, Activities of Daily Living, Review Literature as Topic.

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Resumo

Introdução: O *Activity Card Sort* (ACS) é uma ferramenta desenvolvida para avaliar a participação de idosos em atividades instrumentais de vida diária, sociais e de lazer de baixa e alta demanda. É considerado um instrumento de avaliação útil para o processo terapêutico ocupacional utilizando uma abordagem baseada nas ocupações e centrada no cliente. **Objetivo:** Analisar as principais características da produção científica sobre a utilização do ACS na população de idosos. **Método:** Foi realizada uma revisão integrativa da literatura. Para a seleção dos registros bibliográficos, foram selecionadas seis fontes de informação, sem recorte temporal. Na organização e análise dos dados, foi criada uma coleção dos registros bibliográficos para realizar a análise descritiva e, na construção e visualização de redes bibliométricas, foi aplicado o *VOSviewer*. **Resultados:** A amostra foi composta por 67 artigos. Os objetivos das pesquisas eram direcionados a examinar as propriedades psicométricas do instrumento, utilizar o ACS para comprovar o impacto das deficiências na participação e engajamento em atividades ou usar o ACS como medida de desfecho em diferentes intervenções. **Conclusão:** O instrumento se apresentou como uma opção que enriquece o processo avaliativo na terapia ocupacional, uma vez que apresentou boas propriedades psicométricas, foi capaz de capturar o nível de participação em diferentes populações, assim como pôde ser usado como medida de desfecho para intervenções que se preocupam com o engajamento em ocupações.

Palavras-chave: Terapia Ocupacional, Idoso, Participação social, Atividades Cotidianas, Literatura de Revisão como Assunto.

Introduction

Engagement and participation in activities are the central objectives of occupational therapy (Almeida et al., 2017). Studies show that participating has a positive impact on individuals' mental and physical health, decreasing the risk of disability (Fox et al., 2017), acting as a protective factor for cognitive deficits and depression (Spitzer et al., 2011), contributing to the well-being and reducing mortality (Uemura et al., 2018).

In gerontology, there is the importance of assessing the level of participation in activities of the elderly population to understand the factors that impact their engagement and, think about political solutions and services to favor healthy aging (Packer et al., 2008).

When considering the evaluation process in occupational therapy, the Activity Card Sort (ACS) stands out as an instrument based on occupations and centered on the client, providing useful information on the participation patterns in instrumental, social, and leisure activities (high and low physical demand) (Baum & Edwards, 2001, 2008; Laver-Fawcett et al., 2016).

There are three versions to apply the instrument depending on the environment in which the individual is inserted or the health condition: for institutionalized people (version A), in rehabilitation (version B), and for those who live in the community (version C) (Alegre-Muelas et al., 2019).

The ACS uses photographs of elderly people in activities to capture the level of participation measured by the percentage of activities that are currently preserved, compared to a previous situation (before the disease, hospitalization, or a certain age, for example) (Orellano et al., 2014). The collected data inform the elderly's occupational repertoire (Poerbodipoero et al., 2016; Kniepmann & Cupler, 2014).

By the relevance of this assessment, the guiding question of the research was: How has the ACS been used with the elderly older adult? Thus, this article aimed to analyze the main characteristics of scientific production on the application of ACS in the elderly population.

Method

We carried out an integrative literature review based on the study by Souza et al. (2010).

As inclusion criteria, we considered articles in Portuguese, English, and Spanish that addressed the use of ACS in older adults. We excluded literature review studies, pre-prints, conference abstracts, proceedings, editorials, books, dissertations, and theses.

The sources of information selected in the first stage with no time frame were: Web of Science, Scopus, MEDLINE/PubMed, PsycINFO, SciELO, and LILACS. The search term used was "Activity Card Sort" (ACS) and the descriptor "aged", "*idoso*" ou "*anciano*" (consulted by the Health Sciences Descriptor). In English literature, other search terms were also used such as: "older adults", "older person" or "elderly". The expressions were found in the title, abstract, and/or keywords of the productions found. The search was carried out between September and December 2019. The Boolean operators AND, and OR were used for the combinations.

The total number of publications was 184. For the elaboration of the bibliographic portfolio, we removed 104 duplicates, leaving 80 documents. Then, we selected and excluded some justified in Figure 1. All articles were read in full, regardless of the type of access release.

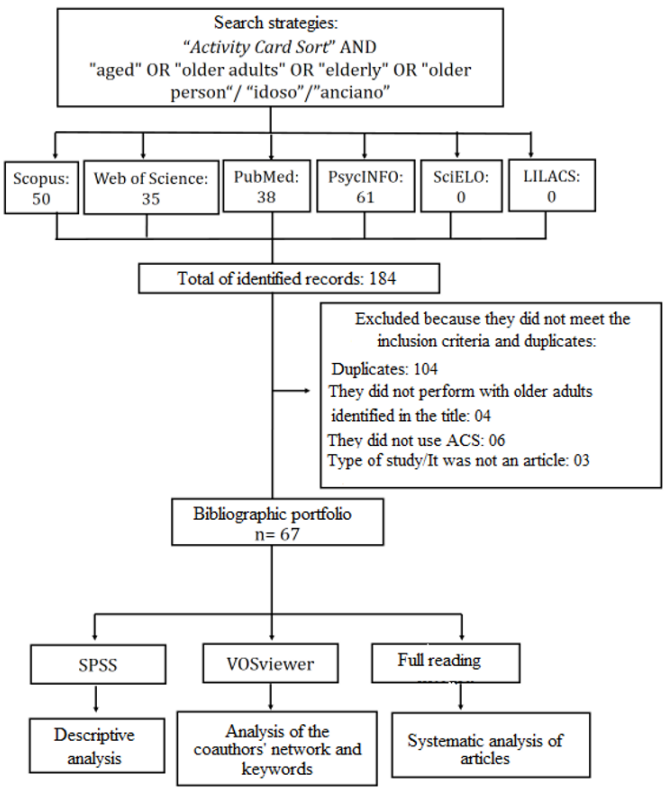

Figure 1. Flow of study steps. Source: Elaborated by the authors.

For data organization and analysis, we created a collection of bibliographic records in the reference manager EndNote®. We applied VOSviewer - Visualizing Scientific Landscape to create the infographic and check the bibliometric network of keywords used in the articles.

Subsequently, we prepared the Microsoft Excel® form to organize the results. The articles were analyzed considering the authorship, year of publication, journals used, objectives of the studies, methodological designs, use of the ACS, outcomes, recommendations, or conclusions of the studies. Thus, these data were then submitted to a thematic categorization process that will be presented in the results.

Results

The research corpus consisted of 67 articles from 2003 to 2019, with the largest number of publications in 2018 (n = 10), followed by 2014 and 2019 (n = 08). The productions were published in 25 different types of journals, with the largest productions published in OTJR: Occupational, participation, and Health (n = 13), followed by Disability and Rehabilitation (n = 12) and American Journal of Occupational Therapy (n = 6). They came from 14 countries, most of them from educational institutions in the United States (n = 27), Australia (n = 13) and Israel (n = 10).

The scientific publications involved 313 authors. In the collaboration network between the authors, Baum (n = 10), Packer (n = 07), Hartman-Maeir (n = 05) and Katz (n = 04) were the authors who most published on the theme, in different partnerships among them and with other co-authors. The author who contributed most to the productions - Carolyn Baum - is the creator of the instrument and has partnered with researchers from different countries. Dorothy Edwards - the second author responsible for the development of ACS - appeared in only one publication.

Figure 2 shows the relevance of the themes, which represents the volume and list of terms used as keywords in publications.

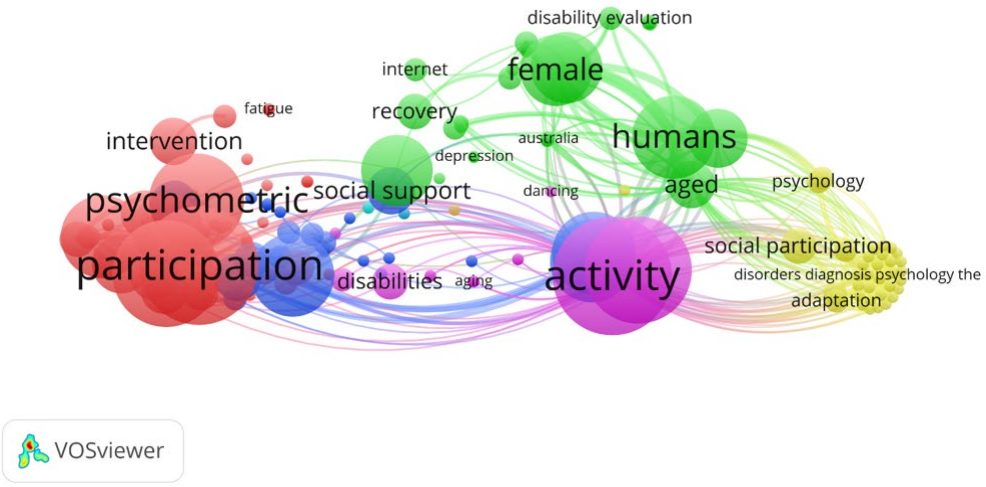

Figure 2. Infographic of terms used in the articles. Source: Elaborated by the authors.

In this representation, the size of the circle is directly proportional to the frequency and importance of the items. Thus, we observed clusters highlighting the following keywords: participation, rehabilitation, activity (including the level of activity and activities of daily living), and psychometric properties (adaptation, utility, validation). Linked to these terms, the themes that addressed aging, occupation, and disabilities were highlighted.

Approximately 54% of the studies were done exclusively with the elderly population. In the rest of the articles, adults and older adults were recruited; however, the age did not interfere with the results achieved. The results show that the research was composed of three objectives: to examine the psychometric properties of the instrument (n = 14); to use the ACS to prove the impact of diseases on participation (n = 31); or as a measure of the outcome of interventions (n = 22).

The research aimed at examining psychometric properties has disclosed cross-cultural adaptations, inter-and intra-examiner agreement analysis, internal consistency, utility, reliability, and/or validity. The contexts and outcomes of each research are described in Table 1.

Table 1. ACS characteristics and its psychometric properties (n = 14).

Authors and year	Context	Outcome
Chan et al. (2006)	Transcultural Adaptation	ACS-Hong Kong consists of 65 activities. Four cultural activities were included.
Packer et al. (2008)		ACS-Australia consists of 82 activities, divided into domestic, social/educational, and leisure activities.
Laver-Fawcett & Mallinson (2013)		ACS-UK consists of 91 activities. The response variable "do more" was inserted.
Uemura et al. (2018)		ACS-Japan consists of 72 activities. Eight cultural activities were included.
Alegre-Muelas et al. (2019)		ACS-Japan consists of 72 activities. Eight cultural activities were included.
		ACS-Spain consists of 79 activities and insertion of the social participation and productivity and education domains. Three cultural activities were included.
Sachs & Josman (2003)	Utility	ACS-Israel, ACS-United Kingdom, ACS-Holland: Intelligent and had good acceptance and clinical utility by the older adults.
Eriksson et al. (2011)		
Laver-Fawcett et al. (2016)		
Poerbodipoero et al. (2016)		
Jong et al. (2012)	Inter and intra-examiner agreement	High level of inter and intra-examiner agreement.
Katz et al. (2003)	Reliability, Internal Consistency, and Validity	Good test-retest reliability, internal consistency, convergent validity with quality of life instruments for post-stroke patients, or for multiple sclerosis or with functional status instruments. Except for the study by Poerbodipoero et al., that the convergent validity was weak to moderate.
Chan et al. (2006)		Good apparent validity and discriminative validity between healthy adults/older adults, post-stroke and Alzheimer's; different age groups; among healthy and with multiple sclerosis older adults.
Doney & Packer (2008)		
Lyons et al. (2010)		
Orellano et al. (2012)		
Hamed & Holm (2013)		
Poerbodipoero et al. (2016)		
Laver-Fawcett et al. (2016)		

Source: Elaborated by the authors.

In the analysis of these studies, we found that the ACS is a culturally dependent instrument. It has been translated, validated, and adapted in numerous locations such as the United Kingdom, Spain, Hong Kong, Holland, Japan, South Korea, and Australia. In each location, the total number of activities analyzed by the instrument was differentiated since the items that did not correspond to the culture of that population were removed and other activities that were part of that country's repertoire were added.

Na sequência, foram analisados os estudos transversais que utilizaram o ACS como uma medida para avaliar o nível de participação em diferentes populações, para investigar os fatores que estavam associados ao engajamento em atividades ou para correlacionar a participação a diferentes constructos (Tabela 2).

Then, we analyzed the cross-sectional studies that used the ACS as a measure to assess the level of participation in different populations to investigate the factors that were associated with engagement in activities or to correlate participation with different constructs (Table 2).

Table 2. ACS studies as an evaluation measure to analyze the level of participation, its factors, and correlations (n = 31 articles).

Authors and year	Context	Outcomes
	Level of participation in:	
Hartman-Maeir et al. (2007a)	Post-stroke individuals	The stroke had a serious and lasting impact on the level of participation.
Spitzer et al. (2011)	With/without cognitive impairment	When in the younger age group, reduced social activities, and leisure of high/low demand. Older people even gave up on IADLs.
Wolf et al. (2012)	With/without somatosensory impairment	Those with cognitive deficits reduced the high demand for leisure and social/educational activities.
Tse et al. (2017, 2018)		The presence of paresis in the members and the sensory impairments reduced the level of participation in all domains of the ACS.
Carey et al. (2018)		At follow-up, without the presence of depression, the preservation of activities was resumed, especially social and leisure activities.
Verberne et al. (2019)		
Cipriani et al. (2006)	Older adults	Elderly people with activity limitations or cognitive, sensory (except auditory) and mood deficiencies, and the presence of neurodegenerative disease showed significant reductions in participation levels.
Albert et al. (2009)	With/without limitations in ADL and IADL.	High-demand leisure activities and social activities were the most affected among those who had a health condition, with the retired, vulnerable, those who lived alone or took care of their grandchildren.
Perlmutter et al. (2010)	With/without sensory, cognitive, and/or mood deficiency	For institutionalized elderly people, the level of participation in IADL was reduced by the routine of the establishments, as the activities were carried out by third parties. The same occurred for vulnerable elderly people, but due to lack of opportunity or interest. IADLs were the most required by older adults with cognitive deficits for reengagement, as it was associated with the independence to live alone.
Duncan & Earhart (2011)	Mild cognitive impairment (CCL)	Age, for retirees, interfered negatively in participation.

Table 2. Continued...

Authors and year	Context	Outcomes
Lyons et al. (2011, 2013)	Parkinson's disease (PD)	Male retirees had higher participation in activities than women. The same was observed in transplant recipients.
Orellano et al. (2014)	Hip fracture	For healthy elderly people, the most significant activities were chosen by culture.
Lee (2014)	Cancer	The elderly with fractures recovered low-demand leisure activities up to 6 months after the injury.
Marken & Howard (2014)	Stem cell transplants	
Chapman & Nelson (2014)	Vulnerable	
Fox et al. (2017)	Institutionalized	
Rodakowski et al. (2018)	Healthy, community residents	
Segev-Jacubovski et al. (2018)	Retired	
	Take care of grandchildren	
Kniepmann (2012, 2014)	Caregivers	There was a reduction in participation after taking on the role of caregivers.
Kniepmann & Cupler (2014)	Post-stroke older adults	The greater the social support, the greater the level of participation.
Rosenwax et al. (2014)	Who became widows	Social, educational and leisure activities were the ones that suffered the most reduction.
	Correlation between participation and:	
Hartman-Maeir et al. (2003)	Disease awareness in post-stroke older adults	The lower the awareness, the longer hospitalized and the lower level of participation.
Hartman-Maeir et al. (2007b)	Post-stroke satisfaction and emotional status	There was a negative correlation between satisfaction and depression at the level of participation.
Spitzer et al. (2011)	Post-stroke cognition and mood	Mild cognitive impairment was associated with a lower level of participation.
Jung et al. (2015)	Fear of falling among the older adults	Moderate positive correlations between confidence in not falling and participation in IADL, social, and leisure activities.
Engel-Yeger & Rosenblum (2017)	Sensory processing in the community	Lower sensory processing skills correlated with a lower level of participation in IADL, low/high demand social and leisure activities.
Shpigelman et al. (2017)	Quality of life of elderly people with memory complaints	Older adults with cognitive complaints had less participation and quality of life. Depression and level of participation were predictors of quality of life.
Seaton & Brown (2018)	With body functions and structures in the older adults	Association between manual dexterity and levels of participation. Mobility, balance, and coordination did not impact their participation.
Hanna et al. (2019)	Sitting time and fear of falling in post-stroke elderly people with/without upper limb deficit.	It reduced, on average, 20% of post-stroke activities. The longer sitting or deficits in the upper limb, the less participation in activities that involved standing or walking.
Tse et al. (2017)	Humor	Each depressive symptom was associated with a 1% decrease in the level of participation.
	Factors that interfere with participation in:	
Tucker et al. (2012)	Post-stroke individuals (without and with aphasia)	Self-perception of post-stroke functional recovery and subjective well-being of caregivers were predictors of participation.
Wolf & Koster (2013)	Widowed caregivers	The lack of opportunity, interest, company, or the demand for physical effort were factors that reduced the participation of vulnerable elderly people.
Rosenwax et al. (2014)	Women living alone	
Fox et al. (2017)	Vulnerable older adults	

Caption: IADL: instrumental activities of daily living; ADL: activities of daily living. Source: Prepared by the authors.

These studies were interested in recruiting people with/without disabilities, with neurological, neurodegenerative, oncological, orthopedic diseases, in situations of vulnerability, or in specific environmental contexts. Due to age or health/social condition, these participants showed a reduction in the level of participation, especially in high-demand social and leisure activities, measured by the ACS.

Instrumental activities were the most preserved of the three ACS categories, except in the research by Cipriani et al. (2006) and Fox et al. (2017). Cipriani et al. (2006) investigated older adult residents in long-term care facilities. Thus, the greatest reduction in instrumental activities was due to the institutional routine, in which the activities were carried out by employees of the institution. Fox et al. (2017), when studying low-income elderly people pointed to greater reductions in instrumental activities due to lack of opportunity or interest.

The results also showed thirteen studies that sought to associate the level of participation with the sensory, cognitive, affective, psychic, or motor functions of individuals. Deficiency in body functions was associated with a lower occupational repertoire for all categories of activities measured by the ACS assessment instrument. The factors positively associated with the level of participation in the activities were the self-perception of recovery from a disease, the feeling of well-being, opportunities, interests, and having the company of other people (Orellano et al., 2012; Tucker et al., 2012; Wolf & Koster, 2013).

In the last analysis, the ACS was used as an assessment tool to measure the effectiveness of interventions in populations with different health conditions (Table 3).

Table 3. Use of ACS as a measure of intervention outcome (n = 22).

Authors and year	Context: Intervention	Target Audience: Individuals with Nº of participants (N) Groups (G)	Outcomes
Hartman-Maeir et al. (2007a)	Community rehabilitation (CR)	Post-stroke N: 83 G1: 27 CR G2: 56 without CR	G1 and G2 had a low functional level, with assistance for ADL and IADL (exception: "use of the phone" in G1). G1 showed a significant improvement (± 15%) in the level of participation and satisfaction with life than the control group (G2).
Packer et al. (2009)	Vision Self-management Programme (VSM)	Visual impairment N: 13 Intervention group only	In the post-intervention, there was a statistically significant increase in participation (8%) and a reduction in depressive symptoms. At follow-up (12 weeks after the end of the intervention), the level was 1% above the pre-intervention.
Girdler et al. (2010)		N:36 G1: usual care +VSM G2: usual care	G1 increased the level of participation compared to G2, regardless of depressive symptoms.
Ghahari et al. (2010)	Online fatigue self-management program ("Managing Fatigue" - MF) Online or in-person	Extreme fatigue N: 115 G1: MF online G2: MF no activities and interaction G3: group control	G1 and G2 increased participation. G1 showed better results than G3, mainly in self-efficacy. There were no significant differences between the three groups for fatigue, quality of life, depression, anxiety, stress, or social support.

Table 3. Continued...

Authors and year	Context: Intervention	Target Audience: Individuals with Nº of participants (N) Groups (G)	Outcomes
Ghahari & Packer (2012)		N:115	G2 obtained a better score than G1 for reducing overall fatigue, except for follow-up, which resulted in a higher level of participation.
		G1: online	G1 and G2 had improvement in general and cognitive fatigue than G3, after the intervention and at follow-up. G1 had better self-management of depression, stress, and self-efficacy.
		G2: in person	
		G3: control	
		G4: without intervention.	
Henshaw et al. (2011)	Cognitive Orientation to Daily Occupational Performance (CO-OP)	Post-AVE	Case 1 increased in participation and case 2 maintained the participation, without knowing whether it was statistically significant.
		N:2	
		Intervention group only	
Foster et al. (2013)	Community tango dance program	Parkinson	G1 participation increased to 90% and G2 remained around 80%. Low demand leisure with more consistent improvements in G1.
		N:52	
		G1: tango	
		G2: control	
Wehofer et al. (2013)	Use of activities and Equine-assisted therapy	Risk of falling	There was an increase in 12 activities after the intervention with hippotherapy, with reduction of chronic pain, improvement in functional balance, decreasing the risk of falling.
		N: 1	
		G: Not applicable	
Sturkenboom et al. (2014)	Occupational therapy at home	Parkinson	G1 increased participation in IADL compared to G2, 3 and 6 months after the intervention, greater satisfaction with performance in activities, perception, and coping with daily functioning.
		N:191	
		G1: 124 with OT	
		G2:67 control, without OT.	
Sabari et al. (2015)	Brooklyn Parkinson's Group Community Program (BPg)	Parkinson	G1 preserved activities more, especially for low-demand and social leisure. No difference between groups in quality of life.
		N: 26	
		G1: 13 with BPg	
		G2: 13 without BPg	
McNamara et al. (2016)	Community program	Weakness	Positive effect on the level of participation, particularly for IADL and leisure. Participants were more confident.
		N: 21	
		Intervention group only	
Kaizerman-Dinerman et al. (2018)	Metacognitive group intervention (MCG)	Schizophrenia	Significant increases in performance, activity, and participation in G1, mainly in IADL.
		N: 84	
		G1: 43 MCG	
Kaizerman-Dinerman et al. (2019)		G2: 41 control	G1 used more cognitive strategies (secret and open) and predicted participation.
Wetherell et al. (2018)	Activity, Balance, Learning, and Exposure (ABLE)	Fear of falling	G1 showed a significant reduction in fear of falling and increased participation. No differences in drop rates between groups, intervention, and follow-up.
		N: 42	
		G1: 21 ABLE	
		G2: 21 preventive guidelines.	
Kim & Cho (2018)	Occupational-centered cognitive rehabilitation	MCI	AIVD increased but was not significant. The intervention improved cognitive skills.
		N: 6	
		Intervention group only	
Gould et al. (2018)	Breathing, Relaxation, Education for Anxiety Treatment in the Home Environment (BREATHE)	Anxiety disorders	Significant reduction in anxiety symptoms in G1, with no significant effect on participation.
		N: 40	
		G1: 20 BREATHE	
		G2: 20 control	
Lyons et al. (2019)	Health Through Activity (HTA)	Cancer	G1 had a significantly higher frequency of leisure and IADL involvement. G2 showed minor improvements.
		N: 59	
		G1: 30 HTA	

Table 3. Continued...

Authors and year	Context: Intervention	Target Audience: Individuals with Nº of participants (N) Groups (G)	Outcomes
		G2: 29 usual care	
Wolf et al. (2019)	Cognitive Oriented Strategy Training Augmented rehabilitation – COSTAR versus	Post-stroke	G1 and G2 showed positive changes in most outcome measures and do not indicate a clear advantage that favors one intervention over the other. Compared to COSTAR, TST had a small effect on leisure activities with high demand and medium effect on IADL and general ACS.
	Task-specific Training – TST	N:44	
		G1: 24 COSTAR	
		G2: Control, TST	
Newman et al. (2019)	Cognitive Self-Management	Breast cancer and cognitive impairment	Significant increases in self-perceived performance and satisfaction in daily life, and participation in IADL, social, and leisure activities. At follow-up, gains were not maintained.
		N:15	
		Intervention group only	
Ahn (2019)	Occupation-based intervention	Post-stroke	G1 with a significant increase in the quality of performance and participation in hemiparetic.
		N:43	
		G1: 23 with intervention in occupation	
		G2: 20 with intervention in actions	

Caption: IADL: instrumental activities of daily living; MCI: Mild cognitive impairment; OT: Occupational Therapy. Source: Elaborated by the authors.

The ACS detected an increase in the level of participation in instrumental, social, and leisure activities in individuals after a stroke, when using occupational therapy interventions based on occupations, with the specific training of activities (Wolf et al., 2019; Ahn, 2019), as well as cognitive orientations (COSTAR or CO-OP) (Henshaw et al., 2011; Wolf et al., 2019) or community rehabilitation (Hartman-Maeir et al., 2007a). However, these studies reinforce the need for research with a larger population to ensure the generalization of its outcomes.

Participation in activities, especially in the instruments of daily living (Kaizerman-Dinerman et al., 2018; Kaizerman-Dinerman et al., 2019; Newman et al., 2019), increased after cognitive interventions in individuals with schizophrenia and people with cancer who had a cognitive deficit. However, in the study with elderly people with MCI, this outcome did not impact participation in activities despite having resulted in increased cognitive ability (Kim & Cho, 2018).

The ACS did not observe any statistically significant changes in the level of participation in patients with anxiety disorders who underwent BREATHE –Breathing, Relaxation, Education for Anxiety Treatment in the Home Environment. In this case, only the anxiety condition was reduced after the intervention, without interfering with cognitive ability (Gould et al., 2018).

The level of engagement in activities that required functional or community mobility, such as walking, visiting friends, dancing, and taking care of the home environment increased after community tango programs (Foster et al., 2013), occupational therapy at home (Sturkenboom et al., 2014) and Brooklyn Parkinson's Group (dance, gymnastics, and art) (Sabari et al., 2015) for individuals with Parkinson's. We found the same results with weak older adults or those at risk of falling,

using a community program (physical and social activity) (McNamara et al., 2016), hippotherapy (Wehofer et al., 2013) or with the Activity, Balance intervention, Learning, and Exposure (Wetherell et al., 2018).

The level of participation in all ACS categories was higher after self-managed health interventions such as the Vision Self-management Program (VSM), Managing Fatigue and Cognitive Self-Management than in the usual care of older adults with visual impairment due to aging, with individuals with extreme fatigue or with people with cancer and who had cognitive deficits, respectively. Also, these programs have been associated with reduced depression and a better sense of self-efficacy (Packer et al., 2009; Girdler et al., 2010; Ghahari et al., 2010; Ghahari & Packer, 2012; Newman et al., 2019).

Discussion

The ACS proved to be a useful occupational therapy tool to measure the impact of health conditions on participation in activities or as a result measure in the intervention process. This shows several studies related to psychometric properties in several countries such as Puerto Rico, the United Kingdom, Israel, Hong Kong, Holland, Japan, and Australia (Gustafsson et al., 2017). Other countries are still in the process of analyzing the psychometric properties of this instrument, as is the case in Brazil and Spain.

Considering that the clinical practice of occupational therapy is based on scientific evidence, we can justify the importance of using standardized assessment instruments, as it increases reliability and rigor (Souza et al., 2017) for the identification of the occupational repertoire, and it allows to capture the factors that limit or favor their participation. Using ACS can contribute to a more effective evaluation process, producing comparable results between different locations, as it is a legitimate resource for evaluating intervention programs over time (Massa, 2016).

The studies that used the ACS were similar in three major thematic categories: those aimed at capturing the level of participation in activities, identifying the factors that support or restrict participation, or as a measure of interventionist results in the occupational therapy area. This demonstrates versatility in the use of this instrument since it is capable of informing about the individuals' profile about the participation in daily activities, being able to identify contextual aspects, with their barriers and facilitators for engaging in occupations and for being a useful tool to measure effects of interventions in the occupational therapy area.

The ACS showed that age, health condition, or social situation impacts the participation in activities, especially in high demand social and leisure activities. A study conducted in Brazil found that situations of vulnerability, health problems, poverty, and low quality of life were associated with lower social participation. In this research, the participation was measured by the ability to visit people, go shopping, go to church, go to social meetings, participate in cultural events, drive, make short and long trips and participate in elderly groups (Pinto & Neri, 2017). The variables in this study correspond to items similar to the ACS investigation.

Understanding the participation in social activities is essential in the evaluation processes, as these activities directly influence physical and mental health and the

perception of well-being (Neri & Vieira, 2013). Also, through socially established relationship networks, the identity, values, beliefs, and cultures are formed (Polatajko et al., 2013), having an impact on the occupational profile and the formation of the individual's occupational repertoire.

Thus, it is essential to identify engagement in leisure activities as they are associated with the feeling of rest and fun (Iwasa et al., 2012), generating a sense of independence, self-confidence, and self-satisfaction (Oliveira et al., 2015). Leisure prevents the onset of diseases and is a predictor of quality of life and social participation (Punyakaew et al., 2019). In addition to this evidence, Crevenna & Dorner (2019) also stated that the restriction on leisure - specifically when involving physical activities - is associated with significant limitations for performing instrumental and basic activities of daily living.

Data analysis showed that instrumental activities were the most preserved among older adults. These activities aimed at managing the home environment and mobility in the community are complex to carry out and predict the possibility of the person living alone (Assis et al., 2013). Thus, the commitment in this area imposes changes in the dynamics of the family to meet this person's demands, often leading to the need for a caregiver, social assistance services, or even the institutionalization of the older adult (Massa, 2016), essential to define the care and attention to the older adult.

Some studies show how different health conditions impact participation in activities and highlight how satisfaction with life or the perception of the quality of life affects engagement in occupations. The studies by Roets-Merken et al. (2014) and Choi et al. (2019) confirm the relationship between sensory impairments (auditory and visual), cognitive deficit, or fear of falling due to the decrease in the performance of daily activities, social participation, and loss of quality of life.

Self-perceived health and well-being correlated positively with the level of participation. These findings are corroborated by the study by Lee, Lee & An (2020), who stated that the social bond, the self-perception of functionality, a sense of well-being, intrinsic motivation, and perception of safety in the place where they live correlated with greater participation leisure activities, especially those involving physical activities.

The ACS, in a complementary way, proved to be a valid tool for interventionist outcome measures. Studies with interventions aimed at the use of occupations, techniques for the rehabilitation of body functions, and adaptations of the environment or activities used this instrument. Most interventions resulted in an increased level of participation, except for the BREATHE relaxation technique in people with an anxiety disorder (Gould et al., 2018).

In the interventions focused on engaging in occupations, the systematic reviews by Stewart et al. (2018) as the results of this review, stated that receiving occupational therapy services was strongly associated with an improvement in daily functioning post-stroke, especially in activities of daily living; but in their other study, the authors declared low evidence with an impact on improving the quality of life among survivors (Stewart et al., 2019).

The effective engagement of the older adults in daily activities was also a measure of results in studies that used rehabilitation of body functions such as the use of cognitive interventions (Saa et al., 2019; Tomioka et al., 2018). However, an overview of the review led by Gillespie et al. (2014) reported that cognitive interventions do not impact

the functional capacity and participation of post-stroke elderly people and that this interventionist strategy has moderate effectiveness only for attention deficits, spatial neglect, and motor apraxia, but there is no conclusive evidence of effectiveness for those with memory deficit, perceptual disorders or executive dysfunction.

This review showed dance as a resource that affects motor skills with repercussions on participation in activities. As in the studies by Foster et al. (2013) and Sabari et al. (2015), the systematic review by Rocha et al. (2015) stated that dance has strong scientific evidence in improving mobility, greater social participation, and better perception of the quality of life.

Similarly, Welsby et al. (2019) agreed that the effects of occupational therapy in older adults have a positive impact on occupational performance, with an increase in the level of participation in activities. However, these long-term effects are still imprecise and need to be further studied.

In the reviewed studies, the health self-management was also positively correlated with participation. These resources are increasingly adopted in health services as care modalities based on the concept of self-care and supported self-care, requiring individuals who are committed to managing their demands and be co-responsible for all their treatment (Tavares & Silva Júnior, 2018).

Conclusion

The research showed that the ACS tool is an option that enriches the evaluation process in gerontological occupational therapy since this instrument has reliable psychometric properties, can capture the level of participation in different populations, identifies factors that influence this participation, and can be used as an outcome measure for interventions that are concerned with engaging in occupations.

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