

Review Paper

Participation Assessment Scales for 4 to 18-Year-Old Individuals With Cerebral Palsy: A Systematic Review

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ABSTRACT

Objectives: Participation is defined as involvement in life situations and the ultimate outcome for individuals with disabilities. One of the most common causes of chronic disabilities that restrict individuals' participation is cerebral palsy (CP). The main goal of rehabilitation is to empower clients' participation in various life areas. To affect participation, assessing the outcomes in individuals with different health conditions is necessary. Accordingly, this study aims to overview the psychometric properties of participation assessment scales for 4 to 18-year-old individuals with CP.

Methods: A systematic review using PRISMA guidelines was completed. The searched keywords included the following items: participation, cerebral palsy, ADL, IADL, education, play, leisure, social participation, rest/sleep, work, leisure, scale, assessment tools, activity, meaningful activity, purposeful activity, function, performance, creatural activity, physical activity participation, recreational activity, self-care, mobility, and functional mobility. The inclusion criterion for articles was being published in a peer review journal from 2000 to 2020.

Results: After examining the title, abstract, and full text, 22 articles were eligible to be included. Among 1482 studies, a total of 22 studies assessing the participation of children with CP in meaningful activities were included in this review.

Discussion: The psychometric properties of 8 outcome measures for 4 to 18-year-old individuals with CP were available and 5 assessment scales have the potential to be used for this population; however, the psychometric properties of these scales were unavailable.

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Highlights

- Cerebral palsy is a common cause of chronic disabilities, including a lack of participation in social activities.
- Rehabilitation tries to empower people with disabilities to participate in various life activities.
- It is necessary to evaluate the outcomes of participation of individuals with different disabilities.
- So far, the psychometric properties of 8 outcome measures for individuals with cerebral palsy are available.

Plain Language Summary

Participation in social activities is the ultimate achievement for individuals with disabilities. A common cause of chronic disability is cerebral palsy (CP). We conducted this review study to explore the psychometric properties of participation assessment scales for 4- to 18-year-old individuals with CP. Of 1482 studies in this field, 22 relevant and eligible studies were included in this review. Overall, we found that the psychometric properties of 8 outcome measures for these individuals with CP were available, and 5 assessment scales have the potential to be used for this population.

1. Introduction

Participation is defined as involvement in life situations and the ultimate outcome for individuals with disabilities [1]. In occupational therapy practice framework (OTPF), third edition [2], participation is defined according to the international classification of functioning, disability and health (ICF); it is described as involvement in life situations. The term participation includes different concepts, such as personal independence and social integration. The definition of participation should be considered throughout a person's life. A child plays with his friends, plays sports, goes to school, and plays the role of a family member; an adult participates in family, work, leisure, and social activities; and an elderly may want to continue working, traveling, doing charity work, and spending time with his family. These activities demonstrate a person's desire to fully participate in society and do what is meaningful and important to them [2]. Recently, the word, participation, has gone beyond subjectivity as it is an important concept in the OTPF-III and ICF. According to OTPF-III, the main purpose of occupational therapy interventions is to improve and maintain welfare, participation, and the quality of life in clients. [2]. Factors that influence participation in meaningful activities are participation dimensions that include the interests and priorities of the child, what they want to do, the perceptions of how enjoyable an activity is (enjoyment), where and with whom they want to do they activity, the level of independence in doing the activity (with whom, assistant

level, or ability level), how satisfied the parents are (parent's satisfaction), the amount, pattern, and variety of activities (diversity), and how often the activity is performed (intensity or frequency) [2-6].

Children with cerebral palsy (CP) are one of the most susceptible groups whose participation in purposeful activities may be limited because of comorbid disorders. The main purpose of rehabilitation is to empower clients to participate in different life areas. To influence participation, assessing the outcomes in individuals with different health conditions is important [3]. CP remains a common condition, with a prevalence of 2.11 per live birth [1]. CP refers to a condition with various uncontrolled motor disorders caused by damage to the motor control centers of the brain that has occurred before birth, at birth, or after birth.

This study aims to determine the participation assessment scales specifically targeting the area of participation based on OTPF for individuals with CP in the age range of 4 to 18 years. By reviewing the identified scales, we can select the appropriate scales to evaluate the participation of individuals with CP and design and conduct clinical trial studies on the participation of children with CP. Selecting the appropriate assessment scales would be beneficial for clinicians and researchers who want to measure the participation of individuals with CP as well.

2. Materials and Methods

Search strategy

This systematic review study aims to determine the psychometric properties of a variety of participation assessment scales for 4 to 18-year-old individuals with CP. For data collection, the first and the second author of the present study separately searched the articles on databases by English keywords. To determine the levels of evidence of the articles, the AOTA levels of evidence were used by the researchers [7]. The English electronic databases included CINAHL, Google Scholar, Cochrane, PubMed, OVID Medline, ProQuest, Web of Science, OT direct, OT search, and Pedro.

Following are the keywords which were used individually or with Boolean operators based on MeSH: "Participation," "Occupational Performance," "Assessment," "Evaluation," "Children," "Cerebral Palsy," "Occupation," "Assessment," "Scale," "ICF," "OTPF," "School," "ADL," "Sleep/Rest," "IADL," "Leisure," "Social Participation," "Play," "Work."

Study selection (screening)

All extracted articles were evaluated by the two reviewers independently and separately based on predetermined inclusion and exclusion criteria. The inclusion and exclusion criteria are provided in Table 1. If there was a disagreement between the reviewers about an article, it was resolved through a 2-person discussion. If the reviewers did not reach an agreement on a particular article, a third reviewer intervened and his or her opinion was applied to the article. To analyze and report the results, the researchers used the descriptive data synthesis approach. accordingly, after selecting the articles and resolving any disagreements, the findings of each article were fully extracted. The extracted findings are reported descriptively and in tables.

Table 1. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Published in a peer-reviewed journal	Studies that addressed the participation assessment scales of individuals with CP over 18 years old
Published in English from 2000 to 2020	Assessment scales which were used for other primary diagnoses rather than CP
Studies related to psychometric properties of assessment scales	As the aim of this study is to identify the participation assessment scale for 4- to 18-year-old individuals with CP, articles that were at V (case report and expert opinion that include narrative literature reviews and consensus statements) AOTA levels of evidence, were excluded.
Availability of the articles' full text	

3. Result

In this study, based on the definitions provided in OTPF regarding participation and social participation, we differentiated participation and social participation and included social participation as an area of participation [6]. The included studies are shown in the PRISMA flow diagram in Figure 1 [8]. Among 1482 studies, 22 studies that assessed the participation of children with CP in meaningful activities were included in this review. The psychometric properties of 8 outcome measures for children with CP were available and 5 assessment scales had the potential to be used for children with CP; however, the psychometric properties of these scales in these children were unavailable. It should be noted that firstly, we included the studies which were about the participation assessment scales of children in meaningful activities, and then the outcome measures with available psychometric properties in children with CP were included in the study. The quality of the characteristics of the children's participation outcome measures is presented in Table 2. The characteristics of the participation outcome measures in CP are presented in Table 3.

Properties of measures

The COSMIN bias list was used to evaluate the characteristics of scales [9]. This list can be employed to evaluate the methodological quality of a scale as well as to compare the psychometric properties of different scales in a special field. [9]. In this study, the validity and reliability of the measures provided by Terwee et al. were assessed [10]: positive "+" (there is a description or argument related to psychometric properties and is also acceptable), negative "-" (inappropriate or less than accepted standards), unspecified "?" (questionable measurement methods), or "0" (no reported information on psychometric properties). Findings of the validity and reliability of the measures are presented in Table 3.

Table 2. Characteristics of Children Participation Assessment Scales

Scale Developer-Year ICF- or OTPF-based	For whom	Type of Scale (e.g., Self-report, Parent-Report, and etc.)	Time for Completion	Areas of Occupation	Number of Items	Range of Scores/Scoring	Original Language	Available Translations
APS Bourke-Taylor H (2009) [11] ICF based and occupation based	5- to 18-year-old children with physical disabilities	Self-report/primary caregiver-report	Not mentioned	Home-based and community-based play and leisure activities	8 items are designed for mothers or caregivers of children with different disabilities.	8 (max-dependency) to 40 (max-independence); 5-point Likert scale (1=unable, 2=with assistance, 3=helping while doing the activity, 4=with supervision, 5=independently)	English	English Turkish Farsi
CHORES Do. Louise Dunn, et al. (2004) [12] ICF	It can be used to document household task engagement of typical children/adolescent and children/adolescents with any health condition, 6 to 14 years of age.	Parent-report	Not mentioned	Self-care, family care	The CHORES includes 33 items that assess children/adolescents' performance and caregiver assistance in household functional tasks. It is a 33-item questionnaire designed to assess participation in household activities. It includes two subscales: self-care, consisting 12 domestic activities, and family-care, consisting 21 activities.	Each item has two types of responses: double answer (yes/no) for each household tasks, and a 7-point Likert score for the level of help to perform the relevant activity (7=alone, 6=partial verbal help, 5=with supervision, 4=with a little help, 3=with a lot of help, 2=cannot do the activity, and 1=is not expected to do the activity).	English	English, Brazilian-Portuguese
CLASS Rosenblum, Sachs & Schreuer, 2010 [13] OTPF	Children with developmental, motor, or sensory disabilities School-age children (10 to 12 years)	Parent-report, and self-report for 10- to 12-year-old children	Not mentioned	Leisure	Includes 40 case questions and 5 open-ended questions	Diversity: 0=does, 1=does not do; frequency: 1=several times a month, 2=once a month, 3=twice a week, and 4=every day; sociability: 1=alone, 2=with relatives (e.g., parents, siblings), 3=with one friend and 4=with more than one friend; preferences: 1=by no means to 10=like many	English	English
CASE Gary Bedell & Janette McDougall (2015) [14] ICF	11- to 17-year-old individuals with acquired brain injuries and other chronic disabilities	Parent-report	5 min	Home, school, and community	The CASE contains 18 items. It assesses the impact of environmental and attitudinal home, school and social on the difficulty in performing the task.	No problem=1, little problem=2, big problem=3	English	English

Scale Developer-Year ICF- or OTPF-based	For whom	Type of Scale (e.g., Self-report, Parent-Report, and etc.)	Time for Completion	Areas of Occupation	Number of Items	Range of Scores/Scoring	Original Language	Available Translations
PACS Occupation-based assessment tools Angela Mandich (2004) [15] ICF	5- to 14-year-old individuals with any diagnosis	It is better to be used as self-report. Occasionally, it can be used as parent/caregiver-report to realize child's real needs.	Approximately 20 to 25 min	Self-care, school/productivity, hobbies/social activities, and sports	83 flash cards, consisting 75 cards of routine activities, and 8 blank cards for another occupations which children may identify	Diversity: (0=yes, 1=no); combination of yes and no shows the rate of participation	English	English
PIP Henry, 2008 [16] ICF	Individuals with 6 to 21 years of age	Self-report	Kid play profile: 15 min Preteen play profile: 20 min Adolescent leisure interest profile: 30 min	Play, leisure	The kid play profile includes 50 play and leisure activities. Kids should respond to each activity based on 3 questions. Preteen play profile includes 59 play and leisure activities. Preteens should respond to each activity based on 5 questions. Adolescent leisure interest profile includes 83 play and leisure activities. Adolescents should respond to each activity based on 5 questions.	Scoring of the preteen play profile: question 1) do you do this activity? yes=1, no=0; question 2) do you like this activity? a lot=3, a little=2, not at all=1; question 3) who do you do this activity with? by myself=1, with friends=1, with a grown-up=1 Scoring of the preteen play profile: question 1) do you do this activity? Yes=1, no=0; question 2) how often do you do this activity? once a week or more=3, once a month or more=2, once a year or more=1; question 3) how much do you like this activity? a lot=3, a little=2, not at all=1; question 4) how good are you at this activity? very good=3, so-so=2, not so good =1; question 5) who do you do this activity with? by myself=1, with friends=1, with a grown-up=1 Scoring of the adolescent leisure interest profile: question 1) how interested are you in this activity? Very=3, somewhat=2, not at all=1; question 2) how often do you do this activity? 3 to 7 times a week=5, less than 3 times a week=4, once to twice a month=3, less than 1 time a month=2, never=1; question 3) how well do you do this activity? very well=3, well=2, not very well=1; question 4) how much do you enjoy this activity? very much=3, somewhat=2, not at all=1; question 5) who do you do this activity with? by myself=1, with friends=1, with family=1	English	English

Scale Developer-Year ICF- or OTPF-based	For whom	Type of Scale (e.g., Self-report, Parent-report, and etc.)	Time for Completion	Areas of Occupation	Number of Items	Range of Scores/Scoring	Original Language	Available Translations
CAPE/PAC King et al. (2004) [5] ICF	Normal individuals and children with physical disabilities in the age range of 6 to 21	Patient-report	CAPE: 30 to 45 min PAC: 15 to 20 min	Recreation and leisure activities Life participation, quality of life, social relationship, patient satisfaction	The Number of CAPE items: 55 and The number of PAC items: 55	Frequency: from 1=in the past 4 months to 7=1 time a day or more; enjoyment: 1=not at all to 5=love it; and preference: 1=I would not like to do at all to 3=I would really like to do it	English	English, Farsi
SFA-P Wendy J. Coster, et al., (1998) [17] ICF	Children with and without disabilities in the age range of 5 to 12	Teacher-report	Untimed - Individual scales may be completed in 5 to 10 min completion of the entire tool takes about 2 h	Nonacademic activities related to school environment	The tool consists of 320 items (26 scales)	Scoring with a 6-point scale from 1, which is very limited, to 6, which is perfect; scores are added to get the total participation score	English	English, Farsi
CPQ Limor Rosenberg (2010) [18] OTPF	4- to 6-year-old children with developmental disabilities	Parent-report	Not mentioned	ADL, play, IADL, social participation, leisure, and education	Consisting 44 items	Diversity: maximum 44 items; intensity: (0) never to (5) every day; independence: 1 to 6, and 6= full independence; parent satisfaction: 1 to 6, and 6=full satisfaction	English	English Farsi
LIFE-H Fougeyrollas, Noreau, et al. (1998) [19] ICF	Individuals with CP, MS, SCI and stroke recovery with the age range of 0 to +65	Self-report, caregiver-report	2 h Short form: 20 min to 40 min Long form: 20 to 120 min	These 12 areas are similar to 7 of the 9 areas provided by the ICF. The first 6 areas are related to ADL. The rest are related to social roles.	Includes a short form and a long form; the long form includes 198 items, and the short form includes 64 items	The scoring ranges from 0 to 9. In the original version, 0 shows the optimal level of participation and 9 indicates a general defect or complete disruption in the participation. However, in the three shortened versions (LIFE-H 2.1, 3.0 and 3.1) the scale was reversed and a score of 0 shows a general defect or complete disruption in the partnership and a score of 9 indicates the desired level of participation.	French, English	French, English, Dutch, Danish, German, Italian, Swedish, Farsi

Scale Developer-Year ICF- or OTPF-based	For whom	Type of Scale (e.g., Self-report, Parent-report, and etc.)	Time for Completion	Areas of Occupation	Number of Items	Range of Scores/Scoring	Original Language	Available Translations
PCPQ Lindsay A. Washington, et al. (2007) [20]	Youths with different physical disabilities aged 8 to 20 years	Self-report, caregiver-report	Not mentioned	Covered participation, ADL, and play or leisure	Consisting 19 questions	Items are scored as follows: 0=I do not know, 1=does not apply, 2=refused to answer; lower scores indicate greater community participation	English	Spanish, French, German, and Mandarin
CASP Gary Bedell et al. (2009) [21] ICF	Children with traumatic and acquired brain injuries	Family/caregiver-report	10 min	Home, community and school participation	Consisting 20 items	Four-point scale: "age-appropriate (full participation)", "somewhat limited," "very limited," "impossible." When the "case" indicates an activity that the child is not expected to participate in because of age (e.g., work), the answer "not applicable" is selected.	English	English
PICO-Q Bar-Shalita T (2009) [22]	Children with SMD aged 6 to 10 years	Parent-report	Not mentioned	ADL, education, play and leisure	Consisting 22 items; ADL: 8 items, education: 6 items, play and leisure: 6 items, and habits and routine: 2 items	All items are rated based on performance, enjoyment, and frequency	English	English
ASK Nancy L. Young, et al. (2000) [23]	5 to 15-year-old children	Self-report or proxy-report	5 to 9 min	Functional mobility	This scale has 30 items and 9 domains. It has two versions: ASK-capability (ASKc) and ASK-performance (ASKp). The Scores show the percentage and performance of the child.	Five-point ordinal scale that is eventually converted to percentage. There is a sixth option named "not applicable" that is used if the activity is not executable. If an item is not executable or has not received a score, it is not counted in the denominator and "n" in the calculation.	English	English
CPAS-C/P Malek Amini et al. (2016) [24] OTPF	6 to 12-year-old children	Self and parent report	Self-report: 45 to 60 min Parent report: 30 to 45 min	ADL, leisure, IADL, work, social participation, sleep/rest, education, play	includes 71 items (ADL: 11, IADL: 10, leisure: 16, play: 13, social participation: 12, education: 4, work: 2, sleep/rest: 3)	Diversity: to do=1, do not do=0; intensity=1 (once in the last 4 months) to 6 (every day); with whom: 1 (alone) to 5 (with others); enjoyment: 1 (at all) to 6 (a lot); parents' satisfaction: 1 (dissatisfied) to 4 (much satisfied)	Farsi	Farsi, English

Table 3. Psychometric Properties of Participation Assessment Scales of Children With CP

PROM (ref)	Language	Study Population/ Number.	Validity			Reliability				
			Face	Content	Construct	Criterion	Test-Retest [ICC]	Internal Consistency [Cronbach α]	Inter-rater [Kappa/ICC]	Intra-rater
APS	English	Children with cerebral palsy, n=29	-	-	+ (EFA), convergent validity (significant correlation with PEDI and PedsQL), and discriminant validity (depending on the type of school, the initial diagnosis and the number of times the child needs to be lifted at home)	-	-	-	-	-
	Turkish [25]	Ninety-eight mothers' of children with disabilities (NCP=68)	?	?	+ Convergent validity, significant correlation with PEDI and PedsQL (P<0.001). The factor analysis was unidimensional and the variance was 0.84%.	-	+ ICC=0.99	+ Cronbach α =0.93	-	-
CHORES	English	Children with and without physical disabilities included CP/32; (children with disabilities=19)	+	-	+ Discriminant validity: CRI household responsibilities factor was correlated with the revised CHORES.	-	+ Test-retest over a 2-3 week, for performance: (0.82<ICC<0.97) and for assistance (0.73<ICC<0.95).	+ Cronbach α \geq 0.96)	-	-
	Brazilian-Portuguese [26]	Children with and without CP/50 (No. of CP=25)	+	+	-	-	+ Test-retest reliability Within one-to-two-week interval was: (ICCs=0.93 a 0.97; P=0.0001).	-	-	-
CPQ	English	231 of 4 to 6-year-old children with developmental disabilities (including CP but the No. of CP=?)	-	+	+ Convergent and divergent validities: convergent validity: significant low and moderate correlations between the overall target CPQ participation criteria (i.e., participation diversity, participation intensity and independence level) and all VABS subscales are supported.	-	+ 0.71<ICC<1.00	+ 0.79 <Cronbach α <0.90	-	-
	Farsi [27]	120 of 4 to 6-year-old children with CP	+	+	+ The CFA: GFI \geq 0.9), and RMSE=0.05. Convergent validity: the VABS were significant (P<0.05).	-	+ Within a 14-day: 0.92<ICC<0.98	+ 0.66<Cronbach α <0.85	-	-
SFA	Farsi [28]	80 children at elementary school-age (CP=75)	+	+	-	-	+ Within a 14: 0.87<ICC<0.98	+ 0.90 <Cronbach α <0.98.	-	-
	English	64 children with physical disabilities (CP=17)	-	-	+ Convergent validity: a significant Correlation found between the scores on the VABS (0.56 \leq r \leq 0.72).	-	-	-	-	-

PROM (ref)	Language	Study Population/ Number.	Validity				Reliability				
			Face	Content	Construct	Criterion	Test-Retest [ICC]	Internal Consistency [Cronbach α]	Inter-rater [Kappa/ICC]	Intra-rater	
SFA	Chinese [29]	93 Children with CP from 6 to 18-years of age	-	+	+ EFA: The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.92 and the Bartlett test of sphericity was significant ($\chi^2=2107.88$, $df=201$, $P<0.001$).	-	+	0.49<ICC<0.97	+ 0.91 <Cronbach α <0.96.	-	-
PCPQ	English (English)	105 cases of 8- to 20-year-old youth with physical disabilities (No of CP=32)	-	-	+ Convergent validity: PCPQ had high convergent validity with functional ability. Discriminant validity: it had high ability to discriminate between ambulatories and non- ambulatories.	-	-	-	+ Cronbach $\alpha=0.92$	-	-
ASK	English				+ Convergent validity: ASK had a significant correlation of 0.81 ($P<0.0001$) with the scores of the childhood health assessment questionnaire.	+ The ICC was 0.89 (95 lower confidence interval 0.79).	+	Test-retest reliability within a 14-day, ICC=0.97	-	-	-
LIFE-H	English	94 children with different physical disabilities (CP, n=48)	-	+	+ Convergent validity with PEDI=0.47<r<0.88	-	-	-	-	(n=80) 0.63 <ICC <0.93	(n=91) 0.58 <ICC <0.95
	Farsi [30]	101 children with CP	+	+	+ Discriminant validity: score of each item with the score of the total items=0.50<r<0.80 Constructs		+	Within a 14-day ICC > 0.87	-	-	-
CAPE/PAC	English	427 Children with physical disability (TD, ABI, CP, DD, SB, musculoskeletal Disorder). No. of CP=?	?	+	+ convergent and discriminant validity: significant correlation with correlated with environmental, family and child variables, in expected ways. Predictions also were supported with respect to differences in mean scores for boys vs girls, and children in various age groups.	-	+	Test-retest reliability was: ICC: 0.72-0.81	+ 0.67< Cronbach α <0.84	-	-
CPAS-P/C	Farsi [31]	164 children with physical disabilities (No. of CP=?)	+	+	+ discriminant validity: item discriminate validity was 85% of scores for each of the questions in the subscale scores.	-	+	Test-retest reliability Within a 14-day: ICC > 0.75	+ Cronbach's $\alpha=0.86$	-	-
	Farsi	304 parents of 6- to 12-year-old children with physical disabilities (No. of CP=274)	+	+	+ CFA: GFI ≥ 0.90), and the RMSE was acceptable. Convergent validity: the convergent validity of the CPAS-P with the VABS was moderate to good.	-	+	0.90<ICC<0.96	+ Cronbach α > 0.90	-	-

4. Discussion

Performing optimal rehabilitation services, especially occupational therapy, to clients requires accurate assessments and the use of efficient tools and scales during evaluation. The present study aimed to determine the participation assessment scales that specifically target the area of participation based on OTPF for individuals with CP in the age range of 4 to 18 years. In this study, 15 scales were found that assessed the participation of individuals with physical disabilities, especially individuals with CP: assistance to participate scale (APS); children helping out: responsibilities, expectations, and supports (CHORES); children's leisure assessment scale (CLASS); child and adolescent scale of environment (CASE); pediatric activity card sort (PACS); pediatric interest profile (PIP); children's assessment of participation and enjoyment/preferences for activities of children (CAPE/PAC); school function assessment-participation section (SFA-P); children participation questionnaire (CPQ); assessment of life habits (LIFE-H); pediatric community participation questionnaire (PCPQ); child and adolescent scale of participation (CASP); participation in childhood occupations questionnaire (PICO-Q); activities scale for kids (ASK); and children participation assessment scale (CPAS-C/P). Among these assessment scales, only 9 (APS, ASK, CPQ, SFA, LIFE-H, PCPQ, CAPE/PAC, and CPAS-C/P) were used for individuals with CP, and the psychometric properties of these 9 outcome measures were available in CP.

LIFE-H is an outcome measure that is translated into more than one language. The usability of this scale is shown in French, English, Dutch, Danish, German, Italian, Swedish, and Farsi. The age range of this scale provides another advantage that applies to individual from 0 to +65 years old. This scale is ICF-based and its utility in other populations rather than children with CP, such as cerebral vascular accident, Parkinson disease, and elderly people are available as well [19, 30].

Each assessment scale has its own advantages and disadvantages, but the most important issue is that the assessment scale should be culturally relevant to the main society. The rationale behind most studies for the development of a new scale was to have an assessment scale culturally relevant to society [24]. Accordingly, as participation is a broad concept and is the main dimension in ICF, the variety of participation assessment scales has changed over time [12, 28]. Among these assessment scales, the CPAS-P/C is the only outcome measure that assesses all areas of participation based on OTPF (ADL, play, IADL, sleep/rest, social participation, leisure,

work, and education), and is suitable for 6- to 12-year-old children with CP [24].

In a large study of child and family follow-up survey (CFFS), Gary Bedell et al. developed CASE and CASP for assessing the participation of individuals with acquired brain injuries [14, 21]. The content of these two scales appears suitable for individuals with CP; however, their psychometric properties should be assessed in individuals with CP as well.

Good documentation and having a common language between rehabilitation specialists and other physicians may help occupational therapists to have good intervention and influence individuals with CP. Therefore, one approach that can help rehabilitation specialists is assessing the participation of children with CP in all life areas.

In this study, the participation assessment scales for individuals with CP have been introduced, so that rehabilitation specialists in the field of children with CP, especially occupational therapists, can use these scales to provide better service to their clients.

5. Conclusion

Rehabilitation interventions aim to improve the participation of individuals with CP in all life areas. OTPF-III demonstrates 8 occupational dimensions throughout one's life (play, work, ADL, leisure, IADL, education, social participation, and rest/sleep). To enhance the quality of life in individuals with CP, all dimensions are necessary. It should be noted that neither dimension is preferred over the other. It is important to use participation assessment tools to plan and provide appropriate interventions for the participation of children with CP. Therefore, rehabilitation professionals with the knowledge of different types of participation evaluation scales can provide the best service for people with CP.

Ethical Considerations

Compliance with ethical guidelines

All ethical principles are considered in this article. The participants were informed of the purpose of the research and its implementation stages. They were also assured about the confidentiality of their information and were free to leave the study whenever they wished, and if desired, the research results would be available to them.

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declare no conflict of interest.

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