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Review Article

Occupational Therapy Assessment Tools for Children and Adolescents in Iran: A Scoping Review

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Abstract

Background: Assessment tools are essential in occupational therapy for providing client-centered care, clinical decision-making, evidence-based documentation, and defining expected outcomes. This study investigated available occupational therapy assessment tools for children and adolescents in Iran.

Methods: A comprehensive search was conducted in MEDLINE, PubMed Central, Web of Science, Embase, Scopus, SID, Magiran, and Google Scholar from their inception until May 24, 2022. Two reviewers screened records and applied inclusion criteria focused on peer-reviewed articles in English or Persian, covering children and adolescents aged 0-18 years old in Iran. The methodological quality of each study and the evidence quality of each measurement tool was assessed using the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) Risk of Bias Checklist, and the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach.

Results: A review of 66 articles published between 2010 and 2021, identified 51 assessment tools. The majority of tools (70.7%) targeted typically developing children and those with cerebral palsy, with limited options for adolescents (n=5) and infants (n=1). These tools primarily focused on assessing body functions (47.06%), particularly sensory-motor functions. While numerous tools demonstrated good reliability (66.67%) and significant content validity (31.37%), there was a paucity of high-quality evidence supporting other psychometric properties.

Conclusion: This study identified 51 occupational therapy assessment tools for Iranian children and adolescents. However, the present research identified some concerning trends, such as lack of tools available for specific populations, an overreliance on translated tools, and a predominant focus on body functions. Moreover, there were concerns about the methodological quality of studies using these tools.

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Keywords ● Occupational therapy ● Documentation ● Psychometrics ● Child ● Adolescent

What's Known

- While standardized occupational therapy assessment tools are considered crucial globally, their adoption varies across countries due to cultural, legal, and financial factors.
- Global studies indicated that occupational therapy assessment tools for children and adolescents should be culturally relevant, diversified, and validated.

What's New

- Fifty-one occupational therapy assessment tools were identified for children and adolescents.
- The primary purpose of assessment tools was to evaluate children who were typically developing, and those who had cerebral palsy, focusing on assessing body functions.

Introduction

Occupational therapy is a client-centered healthcare profession that utilizes evidence-based interventions to facilitate engagement in meaningful occupations and activities. The

goal is to enhance individuals' overall quality of life and engagement across the lifespan by addressing their specific needs and goals.[1] An essential part of occupational therapy is the assessment process, which provides a thorough picture of a client's abilities and requirements. This understanding guides the formulation of intervention strategies and the assessment of progress.[2] Assessment is especially crucial for children and adolescents navigating critical developmental stages. Occupational therapy assessments are instrumental in identifying and addressing challenges that might hinder abilities to participation in daily activities and roles, hence improving the well-being and development of this population.[3]

There are many different types of assessment tools that occupational therapists can use to evaluate various domains, such as physical functions, occupational areas, contexts, performance patterns, and roles.[4] The literature emphasized the use of standardized evaluation methods since they could provide objective data. This data is crucial for diagnosing conditions, planning interventions, evaluating changes over time, and facilitating research activities.[4, 5] Furthermore, standardized assessments strengthen the credibility and uniformity of the occupational therapy profession, enhancing interdisciplinary communication and evidence-based practice.[6] Although therapists are expected to use standardized assessments during their treatment process, some therapists continue to employ non-standardized assessment tools.[7] The limited use of standardized instruments could be attributed to their homogeneity, restricted clinical applications, lack of information about available instruments, limited availability, and accessibility issues.[4]

Despite the recognized importance of standardized assessment tools globally, disparities exist in their application and availability across different countries and contexts. Factors such as cultural relevance, healthcare systems, legal frameworks, and financial considerations significantly influence the selection and utilization of assessment tools.[8] Moreover, the appropriateness of an assessment tool is determined by a number of factors, including psychometric properties, relevance to the client's age and abilities, and practical considerations related to administration.[6, 9]

In the international context, the importance of assessment in occupational therapy and evidence-based practice prompted researchers to examine occupational therapy assessment tools from different perspectives in different countries. Some studies reviewed assessment tools based on specific disorders such as Cerebral Palsy (CP), while others focused on a specific instrument such as the Canadian Occupational Performance Measure (COPM), or tools for measuring a specific occupational domain, such as activities of daily living (ADL).[5, 10, 11] Furthermore, cultural and healthcare systems disparities in different countries prompted researchers to investigate occupational therapy assessment tools in countries such as Brazil and Spain.[12, 13]

In Brazil, 15 occupational therapy assessment tools were found for children and adolescents, which focused on school-aged children and adolescents. These tools focused on functional performance, occupational participation and performance, playful behavior, and sensory functions. However, cultural and contextual relevance challenges emerge due to the widespread use of tools adapted from other countries.[12] In Spain, the majority of assessment tools are dedicated to ADL, instrumental activities of daily living (IADLs), and body functions.[13] The need for culturally and contextually relevant, validated, and diverse occupational therapy assessment tools is evident in these two cultures.[12, 13]

Although half a century has passed since the establishment of occupational therapy in Iran, no study has reviewed available occupational therapy assessment tools in any field. Therefore, this scoping review aimed to investigate the available occupational therapy assessment tools for children and adolescents in Iran, providing a comprehensive overview, and identifying areas where these tools could be enhanced and expanded.

Materials and Methods

Study Design

To provide a comprehensive overview of available assessment tools for children and adolescents in occupational therapy within Iran, a methodological approach that allows for a broad exploration of the existing literature was required. Employing a scoping review method provided a coherent approach to illuminate the array of available assessment tools. This strategy supported a comprehensive exploration across varied sources to present a broad perspective on a specific subject.[14] This method was consistent with our primary objective of mapping the present landscape of available tools and identifying gaps that might require further research or tool development in occupational therapy assessments for children and adolescents in Iran. In addition, the reporting

was structured by the PRISMA extension for scoping reviews (PRISMA-ScR) to ensure a comprehensive and transparent scoping review of occupational therapy assessment tools for children and adolescents in Iran.[15]

Search Strategy

A comprehensive search was conducted using multiple databases, including MEDLINE and PubMed Central (through PubMed), Web of Science, Embase, and Scopus. Moreover, the search was extended to the SID and Magiran databases to identify papers published in Persian. Databases were searched from their inception until May 24, 2022. An initial search was conducted in PubMed by utilizing five concepts derived from the research objective: ("occupational therapy") AND (assessment OR evaluation OR measure OR tool OR test OR questionnaire) AND (infant OR toddler OR child OR adolescent) AND (Translation OR Validity OR reliability OR adaptation OR psychometric) AND (Iran OR Farsi OR Persian). For each database, the keyword and its combination were further optimized to expand their search results. The search strategy for each database is presented in table 1.

Additionally, to ensure comprehensive coverage and identify any additional relevant studies that might not have been indexed in the initial databases, Google Scholar was utilized as a supplementary resource. However, due to its distinct limitations, such as the lack of a precise algorithm for systematic searches, which have been mentioned in several studies, the search was conducted using a simplified search string. The results were handled separately to ensure the rigor and replicability of our search strategy. This strategy was adopted to mitigate the limitations of Google Scholar while still leveraging its capacity to access a wide array of scholarly documents.[16, 17] Furthermore, the references of the included articles were cross-checked to identify any potentially relevant articles.

Study Selection and Eligibility

Two independent reviewers (AJ and FD) screened the identified records against predefined inclusion and exclusion criteria. Inclusion criteria included: (a) peer-reviewed articles, (b) articles in Persian or English language, (c) children or adolescent participants between the ages of 0-18 years old, (d) instruments created or validated by occupational therapists or multidisciplinary team members (e) studies conducted on Iranian children and adolescents in the Iranian context. On the other hand, the exclusion criteria were (a) studies not directly related to the development, adaptation, or validation of assessment tools and (b) studies for which the full text was unavailable.

Table 1: The search strategy for each database

MEDLINE and PubMed Central through PubMed
("occupational therapy") AND (assessment OR evaluation OR measure OR tool OR test OR questionnaire) AND (infant OR toddler OR child OR adolescent) AND (Translation OR Validity OR reliability OR adaptation OR psychometric) AND (Iran OR Farsi OR Persian)
Embase
('occupational therapy'/exp OR 'occupational therapy') AND ('assessment'/exp OR assessment OR 'evaluation'/exp OR evaluation OR measure OR 'tool'/exp OR tool OR 'test'/exp OR test OR 'questionnaire'/exp OR questionnaire) AND ('infant'/exp OR infant OR 'toddler'/exp OR toddler OR 'child'/exp OR child OR 'adolescent'/exp OR adolescent) AND ('translation'/exp OR translation OR 'validity'/exp OR validity OR 'reliability'/exp OR reliability OR 'adaptation'/exp OR adaptation OR psychometric) AND ('Iran'/exp OR Iran OR Farsi OR 'Persian'/exp OR Persian)
Web of Science
ALL=(("occupational therapy") AND (assessment OR evaluation OR measure OR tool OR test OR questionnaire) AND (infant OR toddler OR child OR adolescent) AND (Translation OR Validity OR reliability OR adaptation OR psychometric) AND (Iran OR Farsi OR Persian))
Scopus
TITLE-ABS-KEY ("occupational therapy") AND TITLE-ABS-KEY (assessment OR evaluation OR measure OR tool OR test OR questionnaire) AND TITLE-ABS-KEY (infant OR toddler OR child OR adolescent) AND TITLE-ABS-KEY (translation OR validity OR reliability OR adaptation OR psychometric) AND TITLE-ABS-KEY (Iran OR Farsi OR Persian)
Different databases through Google Scholar (English)
"Occupational therapy" AND (assessment OR evaluation OR measure) AND (tool OR test OR questionnaire) AND (infant OR toddler OR child OR adolescent) AND (Translation OR Validity OR reliability OR adaptation OR psychometric) AND (Iran OR Farsi OR Persian)
Different databases through Google Scholar (Persian)
Due to the limitations of Google Scholar especially when searching with Persian words we used the Persian equivalence of "occupational therapy", combined with validity, reliability, assessment, questionnaire, tool, test, and translation.
SID and Magiran
Due to the simplicity of these databases, we used simple search strings including these databases, which included the Persian equivalence of "occupational therapy", validity, and reliability.

Any disagreements were resolved through discussion and consensus between reviewers and the first author (EJ).

Data Extraction

Two reviewers extracted details and descriptive information from each study (AJ and FD). The extracted information from each article included the author's name, publication year, sample characteristics, the domain of assessment, and raters for the instruments. A third reviewer (EJ) periodically verified the extracted data to validate the consistency and accuracy of the documented information.

Methodological Quality Evaluation

The methodological quality of the included studies was evaluated using the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) Risk of Bias Checklist. This reliable assessment was used to assess and categorize the quality of the methodology used in a study to measure each instrument's property, including internal consistency, reliability, content validity, structural validity, criterion validity, hypothesis testing, responsiveness, cross-cultural validity, and measurement errors. The classification had four levels: very good, adequate, doubtful, and inadequate.[18] The first author (EJ) performed the risk of bias assessment for the included studies, and the other author (HM) double-checked the results to ensure accuracy.

Measurement Properties Quality Evaluation

The psychometric properties quality was assessed using the COSMIN quality criteria for each study. This criterion assessed each psychometric property individually and assigned ratings accordingly. When the statistical psychometric indexes met COSMIN's criteria, they were rated as sufficient (+); otherwise, they were rated as insufficient (-). When the necessary information about psychometric indices and

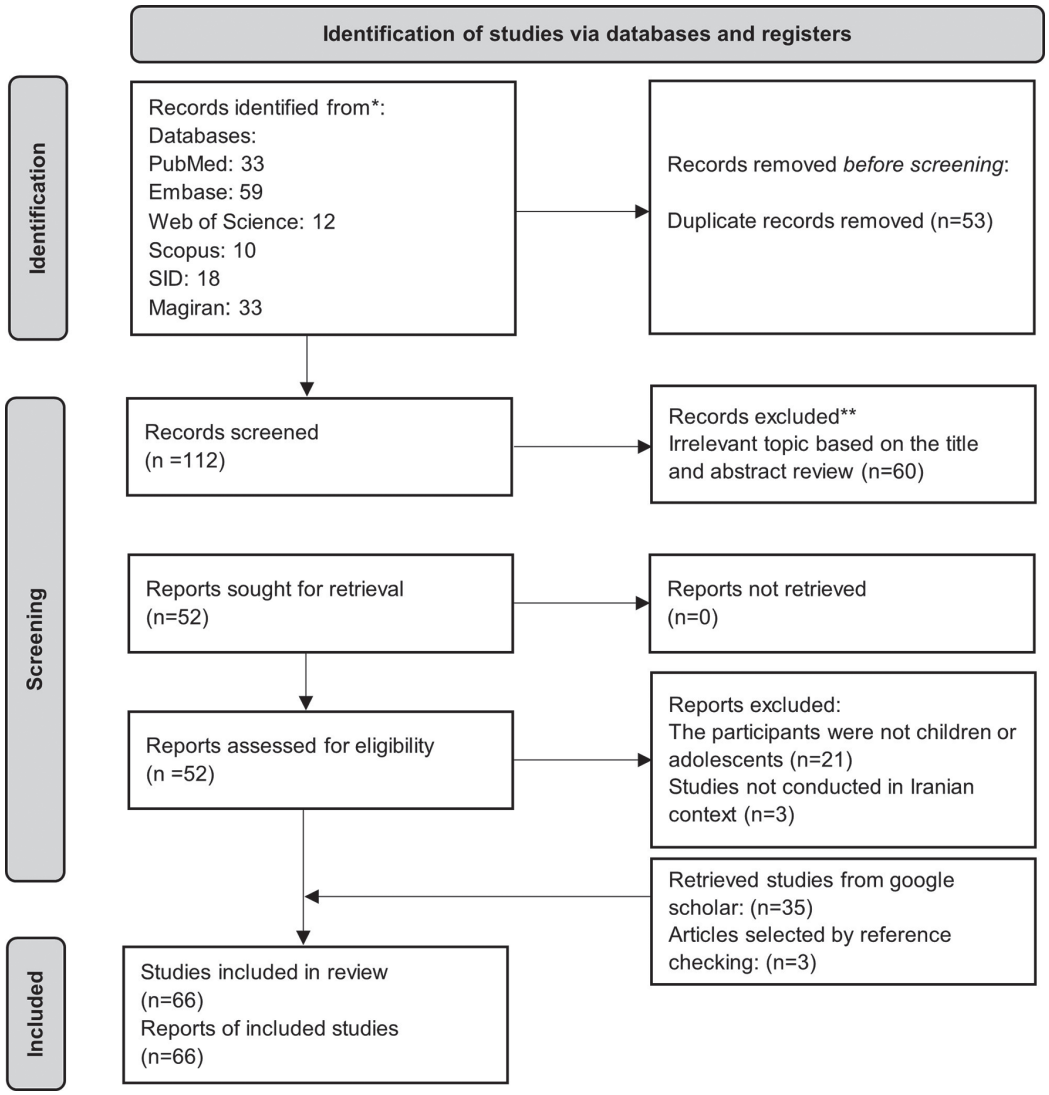

Figure 1: The flow diagram shows the study selection strategy according to PRISMA guidelines.

procedures was not provided, an indeterminate (?) rating was assigned.[19] For example, when assessing reliability, a quality criterion was met if the reported intraclass correlation coefficient or weighted Kappa was greater than 0.70.[20] The first author (EJ) assessed the measurement properties for all the included studies, and another author (HM) cross-checked the ratings.

Quality of Evidence Rating

The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach was used to evaluate the evidence quality for each instrument.[21] This method, which is recommended by COSMIN, involves four parameters for evidence grading. These parameters include (a) Risk of bias in the study design (e.g., weak methodology), (b) The result's indirectness (e.g., if they do not pertain to the target population), (c) The inconsistency of the results, and (d) The imprecision of the evidence (e.g. if the total sample size is less than 50). The overall evidence quality was rated on a four-point scale: high, moderate, low, and very low. For the cases classified as indeterminate based on the COSMIN quality criteria for good psychometric properties, it was impossible to assess the evidence quality using the GRADE approach.[20]

Results

Search Results

During the search process, 165 studies were identified. After eliminating duplicates and screening titles/abstracts, 52 potentially eligible studies were identified. Then, 24 studies were excluded because the participants were not children or adolescents, and also they were not conducted in Iran. Additionally, 35 relevant and eligible articles retrieved from Google Scholar were included. Moreover, three articles were found by reviewing the references of the selected publications. Finally, 66 publications were included in the final analysis (figure 1).

Characteristics of Occupational Therapy Assessment Tools for Children and Adolescents

A total of 51 tools related to occupational therapy assessments for children and adolescents were identified within the 66 publications. Among these, 84% were developed in other countries and validated in Persian, and 16% were designed specifically for the Iranian context. These studies were published between 2010 and 2021 (figure 2). Assessment tools predominantly targeted typically developing (TD) children and children with CP (70.7%). Moreover, the findings of the present study indicated a scarcity of instruments for assessing adolescents (n=5) and infants (n=1) in Iran. Tables 2 and 3 provide further information about the included studies and instruments.

Most assessment tools (n=24, 47.06%) were dedicated to assessing body functions, including sensory, motor, and mental functions. Among these tools, most of them (37.25%, n=19) specifically targeted the assessment of sensory-motor functions. Additionally, a smaller subset of tools (9.80%, n=5) were designed to assess mental functions, particularly executive function and attention. Furthermore, the study identified nine assessment tools (17.65%) that were specifically designed for evaluating occupations in children. Among these instruments, four tools were comprehensive, assessing various areas of occupation in children. The remaining tools were tailored to assess specific occupations, including ADL (two tools), play occupation (one tool), and occupation of education (two tools). Moreover, some assessment tools (n=7, 13.72%) were designed to evaluate participation. Additionally, a small percentage of the assessment tools (n=3, 5.88%) focused on assessment of environments. Other assessment tools addressed domains such as quality of life (n=2), motivation (n=1), self-determination (n=2), and overall development (n=2).

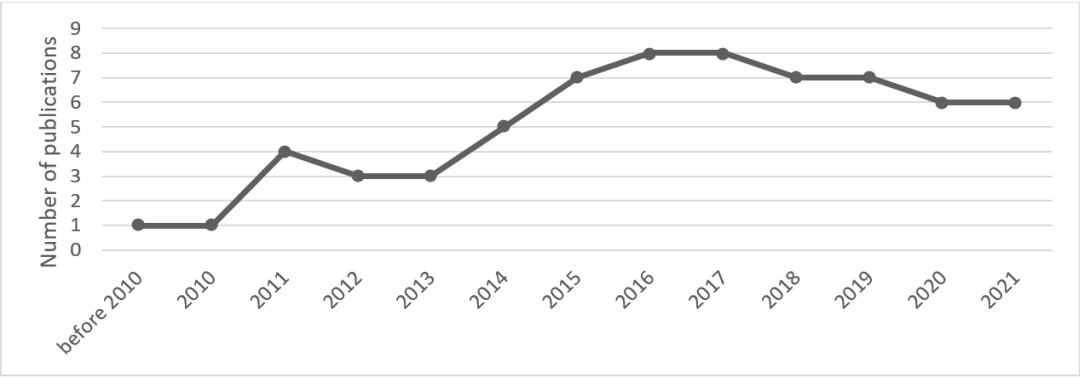

Figure 2: The chart shows the number of publications per year.

Table 2: Summary of founded instruments based on different population

Frequency of occupational therapy assessment tools for different diagnoses[a]	N (%)
Typically developing children	21 (38)
CP	18 (32.7)
CP and other NMDs	2 (3.64)
Non-NMDs Physical disabilities[b]	2 (3.64)
Down syndrome	1 (1.82)
ADHD	3 (5.45)
ASD	2 (3.64)
LD	3 (5.45)
MR	2 (3.64)
Other[c]	1 (1.82)
Frequency of occupational therapy assessment tools across different ages[d]	**N (%)**
Infants	1 (1.78)
Children	50 (89.28)
Adolescents	5 (8.93)

CP: Cerebral palsy; NMDs: neuromuscular disorders; ADHD: Attention deficit hyperactivity disorder; ASD: Autism spectrum disorder; LD: Learning disabilities; MR: Mental retardation; [a]Some instruments were validated in multiple populations; for example, SFA was validated in children with CP and TD children, so the sum of the instruments is more than 51. [b]Visual impairments, cystic fibrosis; [c]Emotional/behavioral symptoms; [d]Some instruments were validated at multiple ages; so, the sum of the instruments is more than 51

Table 3: Characteristics of included studies

Author/ Year of publication	Name of the Tool	Domain of assessment	Participants	Rater	Age	Number of participants	
						Test	Retest
Thaqi 2016 [22]	Behavior Rating Inventory of Executive Function (BRIEF)	Executive functions	Children with ADHD	Parents	6-11 years	40	40
Abdollahipour 2016 [23]	Behavior Rating Inventory of Executive Function- Preschool Version (BRIEF-P)	Executive functions	TD children	Parents	2-5 years	20	-
Yazdani 2015 [24]	Selective Visual Attention Test (SeVAT)	Attention	TD children	Specialists	7 years	60	60
Zahediannasb 2016 [25]	Sustained Visual Attention Test (SuVAT)	Attention	TD children	Specialists	4-6 years	54	38
Fathi 2017 [26]	Test of Everyday Attention for Children (TEACh)	Attention	TD children	Specialists	8-11 years	96	18
Estaki 2021 [27]	Child Sensory Profile 2 (CSP2)	Sensory processing	Children with dyslexia	Parents	6-12 years	200	-
Mirzakhani 2021 [28]	Child Sensory Profile 2 (CSP2)	Sensory processing	TD children and children with ASD and LD	Parents	3-14 years	120	-
Shahbazi 2021 [29]	Child Sensory Profile 2 (CSP2)	Sensory processing	TD children	Parents	0-14 years	1272	213
Movallali 2017 [30]	Sensory Profile-School Companion (SPSC)	Sensory processing	TD children	Teachers	4-11 years	384	-
Hatami 2015 [31]	Sensory Over-Responsivity Inventory (SensOR)	Sensory processing	Children with ADHD	Parents	6-11 years	48	21
Derakhshanrad 2011 [32]	Peabody Developmental Motor Scales (PDMS)	Gross and fine motor skills	TD children	Specialists	60-71 months	150	150
Soltanikhadiv 2014 [33]	Bruininks Oseretsky Test of Motor Proficiency (BOTMP)	Gross and fine motor skills	Children with ID	Specialists	54-83 months	60	-

Author/ Year of publication	Name of the Tool	Domain of assessment	Participants	Rater	Age	Number of participants	
						Test	Retest
Gharaei 2019 [34]	Bruininks Oseretsky Test of Motor Proficiency, Second Edition-Brief Form (BOT-2 BF)	Gross and fine motor skills	TD children	Specialists	4-7 years	306	50
Ghasemifard 2020 [35]	Test of Gross Motor Development (TGMD-2)	Gross and fine motor skills	Children with visual impairments	Specialists	7-10 years	50	50
Riyahi 2013 [36]	Manual Ability Classification System (MACS)	Hand function	Children with CP	Parents, Specialists	4-18 years	100	100
Riyahi 2012 [37]	Manual Ability Classification System (MACS)	Hand function	Children with CP	Parents, Specialists	4-18 years	100	-
Meimandi 2020 [38]	Coin Rotation Task (CRT)	Hand function	TD children, Children with LD	Specialists	8-10 years	120	120
Havaei 2012 [39]	Purdue-Pegboard	Hand function	Children with developmental dysgraphia	Specialists	8-11 years	23	23
Rafiee 2011 [40]	Purdue-Pegboard	Hand function	Children with down syndrome	Specialists	7-14 years	24	24
Sharifi 2014 [41]	Jebsen-Taylor Hand Function Test	Hand function	Children with CP	Specialists	8-12 years	33	33
Havaei 2017 [42]	Persian Handwriting Assessment Tool (PHAT)	Handwriting	TD children	Specialists	8-10 years	339	-
Meimandi 2020 [43]	Persian Handwriting Assessment Tool (PHAT)	Handwriting	TD children	Specialists	8-10 years	452	30
Havaei 2018 [44]	Persian Handwriting Assessment Tool (PHAT)	Handwriting	TD children	Specialists	8-10 years	208	-
Mirzakhani 2015 [45]	Iranian Children Handwriting Speed Test (I-CHST)	Handwriting	TD children	Specialists	8-12 years	400	-
Joveini 2014 [46]	Spinal Alignment and Range of Motion Measure (SAROMM)	Gross motor function	Children and adolescents with CP	Specialists	5-15 years	27	-
Salehi 2015 [47]	Gross Motor Function Measure-88 (GMFM-88)	Gross motor function	Children with CP	Specialists	3-10 years	50	-
Riahi 2013 [48]	Gross Motor Function Classification System (GMFCS)	Gross motor function	Children with CP	Parents	2-12 years	90	90
Kalantari 2016 [49]	Pediatric Balance Scale (PBS)	Gross motor function	Children with CP	Specialists	4-10 years	-	-
Alimi 2019 [50]	Pediatric Balance Scale (PBS)	Gross motor function	Children with CP	Specialists	4-10 years	50	50
Hadian 2007 [51]	Berg Balance Scale (BBS)	Gross motor function	Children with CP	Specialists	6-12 years	20	-
Gharib 2010 [52]	Quality of Upper Extremity Skill Test (QUEST)	Upper limb function	Children with CP	Specialists	19-95 months	20	18
Akbar-fahimi 2012 [53]	Quality of Upper Extremity Skill Test (QUEST)	Upper limb function	Children with CP	Specialists	19-95 months	50	46
Soltaninejad 2021 [54]	Activities of Daily Living of Iranian Children Scale (ADLIC)	ADL	TD children	Parents	3-6 years	60	-

Author/ Year of publication	Name of the Tool	Domain of assessment	Participants	Rater	Age	Number of participants	
						Test	Retest
Soltaninejad 2021 [55]	Activities of Daily Living of Iranian Children Scale (ADLIC)	ADL	TD children	Parents	3-6 years	470	37
Riyahi 2019 [56]	Eating and Drinking Ability Classification System (EDACS)	ADL	Children with CP	Parents, Specialists	3-20 years	130	130
Dabiri 2017 [57]	Child Initiated Pretend Play Assessment (ChIPPA)	Play	TD children	Specialists	4-6 years	31	31
Mirzakhani 2016 [58]	Child Initiated Pretend Play Assessment (ChIPPA)	Play	TD children	Specialists	4-7 years	-	-
Dehghan 2011 [59]	Activities Scale for Kids (ASK)	Occupational performance	Children with CP	Children	5-15 years	73	20
Daftari 2020 [60]	Canadian Occupational Performance Measure (COPM)	Occupational performance	Children with cystic fibrosis	Parents	2.5-13 years	21	21
Moradi 2014 [61]	Pediatric Evaluation of Disability Inventory (PEDI)	Occupational performance	Children with CP	-	6 months – 7.5 years	-	-
Sattari 2015 [62]	Child Occupational Self-Assessment (COSA)	Occupational performance	Children with ADHD	Children	8-11 years	128	-
Sattari 2019 [63]	Child Occupational Self-Assessment (COSA)	Occupational performance	Children with ADHD	Children	7.5-11 years	250	-
Shojaee 2017 [64]	School Function Assessment (SFA)	School-related skills	TD children	Teachers	6-12 years	20	-
Rahimzadegan 2018 [65]	School Function Assessment (SFA)	School-related skills	Children with CP	Teachers	6-12 years	80	30
Amiri 2020 [66]	School Function Assessment (SFA)	School-related skills	Children with CP	Teachers	7-12 years	120	40
Kouhbanani 2018 [67]	School Function Assessment (SFA)	School-related skills	TD children	Specialists	6-12 years	150	150
Nobahar Ahari 2018 [68]	School Interim Competency of Performance Skill Battery Scale (SICPSBS)	School-related skills	TD children	Parents, Specialists	5-7 years	500	-
Amirian 2015 [69]	Children's Assessment of Participation and Enjoyment (CAPE)	Participation	Children with physical and mental disabilities	Children	7-17 years	164	20
Mortazavi 2014 [70]	Life Habits Questionnaire (Life-H)	Participation	Children with CP	Parents	5-13 years	101	22
Amini 2016 [71]	Children Participation Questionnaire (CPQ)	Participation	TD children	Parents	4-6 years	50	-
Amini 2017 [72]	Iranian-Children Participation Questionnaire (I-CPQ)	Participation	Children with CP	Parents	4-6 years	120	50
Amini 2019 [73]	Children Participation Assessment Scale in Activities Outside of School–Parent Version (CPAS-P)	Participation	Children with PDs	Parents	6-12 years	304	32

Author/ Year of publication	Name of the Tool	Domain of assessment	Participants	Rater	Age	Number of participants	
						Test	Retest
Amini 2017 [74]	Children Participation Assessment Scale in Activities Outside of School–Parent Version (CPAS-P)	Participation	TD children	Parents	6-12 years	700	31
Rostamzadeh 2021 [75]	Children Participation Assessment Scale-Child version (CPAS-C)	Participation	Children with PDs	Children	6-12 years	100	40
Amini 2016 [76]	Iranian Children's Participation Assessment Scale (I-CPAS)	Participation	TD children	Children, Parents	6-17 years	40	-
Nobakht 2011 [77]	Craig Hospital Inventory of Environmental Factors (CHIEF)	Environment	Children with CP	Parents	5-12 years	75	20
Salavati 2018 [78]	European Child Environment Questionnaire (ECEQ)	Environment	Children and adolescents with CP	Parents	7-18 years	332	51
Kavousipor 2019 [79]	Affordance in the Home Environment for Motor Development (AHEMD)	Environment	TD children	Parents	3-42 months	212	83
Ghanadzadeh 2016 [80]	Questionnaire to assess educational needs and intervention priorities in parents of children with ASD (QAENIP)	ASD Education and Intervention Priorities	Children with ASD	Parents	-NM	10	-
Azari 2017 [81]	Bayley Scales of Infant and Toddler Development	Cognitive, communication, and motor development	TD infants and children	Specialists	1-42 months	403	45
Soleimani 2015 [82]	Cerebral Palsy Quality of Life Questionnaire (CP-QOL)	Quality of life	Children with CP	Children, Parents	4-12 years	240	20
Yarmohammadi 2018 [83]	Cerebral Palsy Quality of Life Questionnaire-Teen (CP QOL-Teen)	Quality of life	Adolescents with CP	Parents	13-18 years	82	-
Salavati 2018 [84]	Dimensions of Mastery Questionnaire (DMQ18)	Motivation	Children with CP	Parents	126.99± 24.59 months	230	32
Hojati abed 2019 [85]	Self-Determination Student Scale (SDSS)	Self-determination	Adolescents with/ without emotional/ behavioral symptoms	Adolescents	14-18 years	498	16
Hojati Abed 2020 [86]	Self-Determination Parent Perception Scale (SDPPS)	Self-determination	TD adolescents	Parents	14-18 years	125	17
Farahbod 2013 [87]	Physical Well-Being, Health and Motor Development Inventory (PWHMDI)	Physical health and motor development	Children with MR, TD children	Specialists	7 years	200	-

CP: Cerebral palsy; ADHD: Attention deficit hyperactivity disorder; TD: Typically developing children; ASD: Autism spectrum disorder; LD: Learning disorder; ID: Intellectual disability; PDs: Physical disabilities; MR: mental retardation; ADL: Activities of daily living; NM: Not mentioned

Quality of the Included Studies

Table 4 presents the methodological quality of each study based on the COSMIN Risk of Bias Checklist, as well as the quality of measurement properties based on the COSMIN quality criteria. Reliability was assessed most frequently across all studies (46/66), while content validity was assessed in over half of the studies (36/66). Additionally, several studies assessed internal consistency (32/66), structural validity (14/66), and hypothesis testing (20/66). Only four studies reported psychometric data on criterion validity, and two studies reported psychometric data on responsiveness. No information was found on measurement error and cross-cultural validity in any study. Therefore, these indices were removed from the table.

Table 4: Methodological quality of measurement properties and results in quality per study

Instrument	Population	Internal consistency		Reliability		Content validity		Structural validity		Criterion Validity		Hypothesis testing		Respon siveness	
		MQ	RQ	MQ	RQ	MQ	RQ	MQ	RQ	MQ	RQ	MQ	RQ	MQ	RQ
BRIEF[22]	ADHD	D	?	V	+	I	-	N	NR	N	NR	N	NR	N	NR
BRIEF-P[23]	TD	N	NR	N	NR	I	?	N	NR	N	NR	N	NR	N	NR
SeVAT[24]	TD	V	+	I	+	V	+	N	NR	N	NR	N	NR	N	NR
SuVAT[25]	TD	D	?	I	+	V	+	N	NR	N	NR	A	+	N	NR
TEA-CH[26]	TD	N	NR	V	?	I	?	N	NR	A	?	N	NR	N	NR
Sensory profile-2[27-29]	Dyslexia	V	?	D	+	V	+	N	NR	N	NR	N	NR	N	NR
	TD, ASD, LD	V	?	N	NR	N	NR	V	?	N	NR	V	+	N	NR
	TD	V	?	N	NR	N	NR	N	NR	N	NR	N	NR	N	NR
SPSC[30]	TD	V	+	N	NR	I	?	V	?	N	NR	N	NR	N	NR
SensOR[31]	ADHD	V	?	V	?	I	?	N	NR	N	NR	N	NR	N	NR
PDMS[32]	TD	N	NR	I	+	N	NR	N	NR	N	NR	N	NR	N	NR
BOTMP[33]	ID	N	NR	N	NR	N	NR	N	NR	N	NR	V	+	N	NR
BOT-2 BF[34]	TD	N	NR	V	+	N	NR	N	NR	N	NR	A	+	A	+
TGMD-2[35]	VI	V	+	I	+	N	NR	N	NR	N	NR	V	+	N	NR
MACS[36, 37]	CP	N	NR	D	+	I	?	N	NR	N	NR	V	+	N	NR
	CP	N	NR	D	+	N	NR	N	NR	N	NR	N	NR	N	NR
CRT[38]	TD, LD	N	NR	V	+	N	NR	N	NR	N	NR	V	+	V	+
Purdue-pegboard[39, 40]	Dysgraphia	N	NR	I	+	N	NR	N	NR	I	?	N	NR	N	NR
	Down syndrome	N	NR	I	+	N	NR	N	NR	I	?	N	NR	N	NR
Jebsen taylor[41]	CP	N	NR	D	+	N	NR	N	NR	N	NR	N	NR	N	NR
PHAT[42-44]	TD	N	NR	N	NR	I	?	V	?	N	NR	N	NR	N	NR
	TD	V	+	V	+	N	NR	V	?	V	+	N	NR	N	NR
	TD	V	+	V	+	N	NR	N	NR	N	NR	N	NR	N	NR
ICHST[45]	TD	N	NR	N	NR	N	NR	N	NR	N	NR	I	-	N	NR
SAROMM[46]	CP	N	NR	D	+	N	NR	N	NR	N	NR	A	-	N	NR
GMFM-88[47]	CP	V	+	D	+	N	NR	N	NR	N	NR	N	NR	N	NR
GMFCS[48]	CP	N	NR	D	+	I	?	N	NR	N	NR	N	NR	N	NR
PBS[49, 50]	CP	N	NR	N	NR	D	+	N	NR	N	NR	N	NR	N	NR
	CP	N	NR	V	+	N	NR	N	NR	N	NR	N	NR	N	NR
Berg Balance Scale[51]	CP	N	NR	D	+	N	NR	N	NR	N	NR	N	NR	N	NR
QUEST[52, 53]	CP	N	NR	D	+	N	NR	N	NR	N	NR	N	NR	N	NR
	CP	N	NR	D	?	N	NR	N	NR	N	NR	N	NR	N	NR
ADLIC[54, 55]	TD	N	NR	N	NR	V	+	N	NR	N	NR	N	NR	N	NR
	TD	V	?	V	+	N	NR	I	?	N	NR	A	+	N	NR
EDACS[56]	CP	N	NR	D	+	I	?	N	NR	N	NR	N	NR	N	NR
CHIPPA[57, 58]	TD	N	NR	D	?	I	?	N	NR	N	NR	N	NR	N	NR
	TD	N	NR	N	NR	D	?	N	NR	N	NR	N	NR	N	NR
ASK[59]	CP	D	?	V	+	A	?	N	NR	N	NR	V	+	N	NR
COPM[60]	Cystic fibrosis	N	NR	D	+	N	NR	N	NR	N	NR	N	NR	N	NR
PEDI[61]	CP	N	NR	N	NR	I	?	N	NR	N	NR	N	NR	N	NR
COSA[62, 63]	ADHD	N	NR	N	NR	I	-	I	-	N	NR	N	NR	N	NR
	ADHD	N	NR	N	NR	N	NR	N	NR	N	NR	A	?	N	NR
SFA[64-67]	TD	N	NR	N	NR	I	?	N	NR	N	NR	N	NR	N	NR
	TD	V	+	V	+	N	NR	N	NR	N	NR	N	NR	N	NR
	CP	V	+	V	+	D	?	N	NR	N	NR	N	NR	N	NR
	CP	V	+	D	+	D	+	N	NR	N	NR	N	NR	N	NR
SICPSBS[68]	TD	N	NR	N	NR	V	+	V	+	N	NR	N	NR	N	NR
CAPE	PD, MD	D	?	V	+	D	?	N	NR	N	NR	N	NR	N	NR
Life-H[70]	CP	N	NR	V	+	V	+	N	NR	N	NR	N	NR	N	NR
CPQ[71]	TD	N	NR	N	NR	V	+	N	NR	N	NR	V	?	N	NR
I-CPQ[72]	CP	V	?	V	+	N	NR	V	+	N	NR	V	+	N	NR
CPAS-P[73, 74]	PD	V	+	V	+	N	NR	V	?	N	NR	V	+	N	NR
	TD	V	+	V	+	N	NR	V	+	N	NR	N	NR	N	NR

Instrument	Population	Internal consistency		Reliability		Content validity		Structural validity		Criterion Validity		Hypothesis testing		Respon siveness	
		MQ	RQ	MQ	RQ	MQ	RQ	MQ	RQ	MQ	RQ	MQ	RQ	MQ	RQ
CPAS-C[75]	PD	V	?	V	?	N	NR	N	NR	N	NR	A	+	N	NR
I-CPAS[76]	TD	N	NR	N	NR	V	?	N	NR	N	NR	N	NR	N	NR
CHIEF[77]	CP	D	?	V	+	I	?	N	NR	N	NR	A	+	N	NR
ECEQ[78]	CP	V	+	V	+	I	?	V	-	N	NR	N	NR	N	NR
AHEMD[79]	TD	D	?	V	+	V	+	N	NR	N	NR	A	+	N	NR
QAENIP[80]	ASD	N	NR	N	NR	V	+	N	NR	N	NR	N	NR	N	NR
Bayley[81]	TD	V	+	D	+	I	-	N	NR	N	NR	N	NR	N	NR
CP-QOL[82]	CP	V	?	A	?	I	-	I	?	N	NR	A	?	N	NR
CP-QOL Teen[83]	CP	V	+	N	NR	I	?	N	NR	N	NR	A	+	N	NR
DMQ-18[84]	CP	V	?	V	+	N	NR	V	?	N	NR	N	NR	N	NR
SDSS[85]	EB symptoms	V	?	V	+	V	+	N	NR	N	NR	N	NR	N	NR
SDPPS[86]	TD	V	?	A	+	V	+	I	?	N	NR	N	NR	N	NR
PWHMDI[87]	TD, MR	D	?	N	NR	N	NR	N	NR	N	NR	N	NR	N	NR

The methodological quality was rated using the COSMIN Risk of Bias checklist: 4=very good (V), 3=adequate (A), 2=doubtful (D), and 1=inadequate (I). Measurement property rating: sufficient (+), insufficient (−), inconsistent (±), indeterminate (?). MQ: Methodological quality; RQ: Results quality; N: Not reported; NR: Not rated (due to no psychometric data reported); CP: Cerebral palsy; ADHD: Attention deficit hyperactivity disorder; TD: Typically developing children; ASD: Autism spectrum disorder; LD: Learning disorder; VI: Visual impairments; ID: Intellectual disability; PDs: Physical disabilities; MD: Mental disabilities; EB symptoms: Emotional behavioral symptoms; MR: Mental retardation; SAROMM: Spinal Alignment and Range of Motion Measure; BRIEF: Behavior rating inventory of executive function; BRIEF-P: Behavior rating inventory of executive function- Preschool Version; SeVAT: Selective visual attention test; SuVAT: Sustained visual attention test; TEA-CH: Test of everyday attention for children; CSP-2: Child sensory profile-2; SPSC: Sensory profile-school companion; SensOR: Sensory over-responsivity inventory; TVMS-R: Test of visual motor skills_revised; PDMS: Peabody developmental motor scales; BOTMP: Bruininks oseretsky test of motor proficiency; BOT-2 BF: Bruininks oseretsky test of motor proficiency, Second Edition-Brief Form; MACS: Manual ability classification system; QUEST: Quality of upper extremity skill test; CRT: Coin rotation task; TGMD-2: Test of gross motor development-2; SICPSBS: School interim competency of performance skill battery scale; Bayley: Bayley scales of infant and toddler development; PHAT: Persian handwriting assessment tool; ICHST: Iranian children handwriting speed test; GMFM-88: Gross motor function measure-88; GMFCS: Gross motor function classification system; PBS: Pediatric balance scale; BBS: Berg balance scale; Jebsen taylor: Jebsen-Taylor Hand Function Test; ADLIC: Activities of daily living of Iranian children scale; EDACS: Eating and drinking ability classification system; CHIPPA: Child initiated pretend play assessment; CAPE: Children's assessment of participation and enjoyment; ASK: Activities scale for kids; COPM: Canadian occupational performance measure; SFA: School function assessment; COSA: Child occupational self-assessment; PEDI: Pediatric evaluation of disability inventory; Life-H: Life habits questionnaire; CPQ: Children participation questionnaire; I-CPQ: Iranian children participation questionnaire; CPAS-P: Children participation assessment scale in activities outside of school–parent version; CPAS-C: Children participation assessment scale-child version; I-CPAS: Iranian children's participation assessment scale; CP-QOL: Cerebral palsy quality of life questionnaire; CP-QOL Teen: Cerebral palsy quality of life questionnaire-teen; SDSS: Self-determination student scale; SDPPS: Self-determination parent perception scale; CHIEF: Craig hospital inventory of environmental factors; ECEQ: European child environment questionnaire; AHEMD: Affordance in the home environment for motor development; DMQ18: Dimensions of mastery questionnaire; QAENIP: Questionnaire to assess educational needs and intervention priorities in parents of children with ASD; PWHMDI: Physical well-being, health and motor development inventory.

Out of all the studies that measured internal consistency, only 12 studies (37.5%) were conducted with a proper methodology and provided accurate results. Other studies carried a significant risk of bias in methodology or not reporting their findings accurately. Of the studies that measured reliability, content validity, structural validity, criterion validity, hypothesis testing, and responsiveness, 41.3% (n=19), 33.3% (n=12), 21.4% (n=3), 25% (n=1), 85% (n=17), and 100% (n=2), respectively, had a proper methodology and results reporting.

Quality of Evidence for Measurement Tools

Table 5 provides an overview of the evidence quality for each measurement tool using the GRADE approach. Only 10 tools (19.61%) indicated high or moderate internal consistency. However, 16 (31.37%) were categorized as "not rated" (NR), due to improper reporting of results, which made it impossible to determine the quality of evidence for them based on the COSMIN checklist. Furthermore, the remaining tools (n=25, 49.02%) lacked evidence of internal consistency. The quality of evidence for the remaining aspects were as follows: reliability (high/moderate: 34 tools [66.67%], NR: 6 tools [11.76%], no evidence: 10 tools [19.61%]), content validity (high/moderate: 16 tools [31.37%], NR: 16 tools [31.37%], no evidence: 18 tools [35.29%]), structural validity (high/moderate: 5 tools [9.80%], NR: 8 tools [15.69%], no evidence: 38 tools [74.51%]), criterion validity (high/moderate: 1 tool [1.96%], NR: 2 tools [3.92%], no evidence: 48 tools [94.12%]), hypothesis testing (high/moderate: 17 tools [33.33%]; NR: 3 tools [5.88%],

Table 5: Quality of evidence for each measurement tool

Instrument	Population	Internal consistency	Reliability	Content validity	Structural validity	Criterion validity	Hypothesis testing	Responsiveness
BRIEF[22]	ADHD	NR	M	L				
BRIEF-P[23]	TD			NR				
SeVAT[24]	TD	M	M	M				
SuVAT[25]	TD	NR	M	M			M	
TEA-CH[26]	TD		NR	NR		NR		
Sensory profile-2[27-29]	Dyslexia	NR	M	H				
	TD, ASD, LD	NR			NR		H	
	TD	NR						
SPSC[30]	TD	H		NR	NR			
SensOR[31]	ADHD	NR	NR	NR				
PDMS[32]	TD		M					
BOTMP[33]	ID						M	
BOT-2 BF[34]	TD		H				H	H
TGMD-2[35]	VI	M	M				M	
MACS[36, 37]	CP		M	NR			H	
CRT[38]	TD, LD		H				H	H
Purdue pegboard[39, 40]	Dysgraphia		L			NR		
	Down syndrome		L			NR		
Jebsen Taylor[41]	CP		M					
PHAT[42-44]	TD	H	H	NR	NR	H		
ICHST[45]	TD						M	
SAROMM[46]	CP		M				M	
GMFM-88[47]	CP	M	M					
GMFCS[48]	CP		M	NR				
PBS[49, 50]	CP		M	M				
Berg Balance Scale[51]	CP		M					
QUEST[52, 53]	CP		NR					
ADLIC[52-55]	TD	NR	H	H	NR		H	
EDACS[56]	CP		M	M				
CHIPPA[57, 58]	TD		NR	NR				
ASK[59]	CP	NR	M	NR			M	
COPM[60]	Cystic fibrosis		M					
PEDI[61]	CP			NR				
COSA[62, 63]	ADHD			M	M		NR	
SFA[64-67]	TD	H	H	NR				
	CP	H	M	NR				
SICPSBS[68]	TD			H	H			
CAPE[69]	PD, MD	NR	H	NR				
Life-H[70]	CP		H	H				
CPQ[71]	TD			H			NR	
I-CPQ[72]	CP	NR	H		H		H	
CPAS-P[73, 74]	PD	H	H		NR		H	
	TD	H	H		H			
CPAS-C[75]	PD	NR	NR				H	
I-CPAS[76]	TD			NR				
CHIEF[77]	CP	NR	M	NR			M	
ECEQ[78]	CP	H	H	NR	M			
AHEMD[79]	TD	NR	H	H			H	
QAENIP[80]	ASD			M				
Bayley[81]	TD	H	M	M				
CP-QOL[82]	CP	NR	NR	M	NR		NR	
CP-QOL Teen[83]	CP	M		NR			M	
DMQ-18[84]	CP	NR	H		NR			
SDSS[85]	EB symptoms	NR	H	H				

Instrument	Population	Internal consistency	Reliability	Content validity	Structural validity	Criterion validity	Hypothesis testing	Responsiveness
SDPPS[86]	TD	NR	H	H	NR			
PWHMDI[87]	TD, MR	NR						

The quality of evidence was rated using the GRADE approach: High (H), Moderate (M), Low (L), Very low (VL). NR: Not rated (rating evidence is not possible since quality criteria of measurement properties were indeterminate). CP: Cerebral palsy; ADHD: Attention deficit hyperactivity disorder; TD: Typically developing children; ASD: Autism spectrum disorder; LD: Learning disorder; VI: Visual impairments; ID: Intellectual disability; PDs: Physical disabilities; MD: Mental disabilities; EB symptoms: Emotional behavioral symptoms; MR: Mental retardation; SAROMM: Spinal Alignment and Range of Motion Measure; BRIEF: Behavior rating inventory of executive function; BRIEF-P: Behavior rating inventory of executive function-preschool version; SeVAT: Selective visual attention test; SuVAT: sustained visual attention test; TEA-CH: Test of everyday attention for children; CSP-2: Child sensory profile-2; SPSC: Sensory profile-school companion; SensOR: Sensory over-responsivity inventory; TVMS-R: Test of visual motor skills-Revised; PDMS:Peabody developmental motor scales; BOTM: Bruininks oseretsky test of motor proficiency; BOT-2 BF: Bruininks oseretsky test of motor proficiency, second edition-Brief Form; MACS: Manual ability classification system; QUEST: Quality of upper extremity skill test; CRT: Coin rotation task; TGMD-2: Test of gross motor development-2; SICPSBS: School interim competency of performance skill battery scale; Bayley: Bayley scales of infant and toddler development; PHAT: Persian handwriting assessment tool; ICHST: Iranian children handwriting speed test; GMFM-88: Gross motor function measure-88; GMFCS: Gross motor function classification system; PBS: Pediatric balance scale; BBS: Berg balance scale; Jebsen taylor: Jebsen-Taylor Hand Function Test; ADLIC: Activities of daily living of Iranian children scale; EDACS, Eating and drinking ability classification system; CHIPPA: Child initiated pretend play assessment; CAPE: Children's assessment of participation and enjoyment; ASK: Activities scale for kids; COPM: Canadian occupational performance measure; SFA: School function assessment; COSA: Child occupational self-assessment; PEDI: Pediatric evaluation of disability inventory; Life-H: Life habits questionnaire; CPQ: Children participation questionnaire; I-CPQ: Iranian children participation questionnaire; CPAS-P: Children participation assessment scale in activities outside of school–Parent version; CPAS-C: Children participation assessment scale-child version; I-CPAS, Iranian children's participation assessment scale; CP-QOL: Cerebral palsy quality of life questionnaire; CP-QOL-Teen: Cerebral palsy quality of life questionnaire-Teen; SDSS: Self-determination student scale; SDPPS: Self-determination parent perception scale; CHIEF: Craig hospital inventory of environmental factors; ECEQ: European child environment questionnaire; AHEMD: Affordance in the home environment for motor development; DMQ18: Dimensions of mastery questionnaire; QAENIP: Questionnaire to assess educational needs and intervention priorities in parents of children with ASD; PWHMDI: Physical well-being, health and motor development inventory.

no evidence: 31 tools [60.78%]), and responsiveness (high/moderate: 2 tools [3.92%], no evidence: 49 tools [96.08%]).

Discussion

This scoping review is the first to investigate the available occupational therapy assessment tools for children and adolescents in Iran. Fifty-one tools were found that were validated in Persian or developed in Iran. Despite the large number of assessment tools, there were significant gaps and possible areas for further development and expansion in the field of assessment tools, especially regarding different diagnoses, age groups, and the domains of evaluating the existing tools.

Assessment tools predominantly target two populations: TD children and children with CP. This focus can be traced back to the historical development of occupational therapy in Iran, which has typically focused on physical disabilities, with a particular concentration on CP.[88] However, occupational therapy in Iran has evolved significantly in recent decades. It has expanded to provide services for children with various neurodevelopmental disorders such as attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and learning disabilities (LD).[88] The present status of measurement tools development indicates a failure to address the diverse and multifaceted demands of children and adolescents with conditions other than CP and physical disabilities, such as ADHD, ASD, and LD. This highlighted the necessity for a more comprehensive approach to tool development and validation to appropriately address the diverse requirements of all children and adolescents.

In Iran, there are few instruments available for assessing adolescents and infants. This is particularly concerning, given these age groups' distinct developmental, social, and occupational challenges and needs. The lack of attention paid to assessment tools for adolescents in Iran highlights an urgent need for attention to the specific needs of this population. Fouché and colleagues stated that the results of tests, standardized for children and adults, could not be generalized to adolescents.[89] Moreover, beyond adolescents who have experienced disabilities from birth or were traumatized between childhood and adolescence, it should be noted that adolescence is a sensitive and stressful period associated with an increased vulnerability to mental health disorders.[90] Occupational therapists could play a crucial role in addressing the needs of all these groups. However, any intervention must be based on precise assessments.

Based on the findings of the present study, only one instrument (Bayley Scales of Infant and Toddler Development) was found for infants. This tool can be used for the developmental

screening of infants. With the expansion of the occupational therapy profession, therapists are also engaged in the infant stage. The neonatal intensive care unit (NICU) and early intervention programs are the two most important settings where occupational therapists play a role and engage with infants. Consequently, therapists in these fields require reliable, validated assessment tools to help identify and intervene early in developmental delays or disorders.[91, 92] Developing instruments for infants is an evolving field. In a systematic review, Mobbs and colleagues found only a few (four) measures to evaluate infant and toddler participation. Furthermore, these instruments had unknown to moderate validity and reliability.[93] The scarcity of assessment tools for infants, which is also evident in global contexts, highlights a widespread need and opportunity for advancement in this area.

Regarding the assessment domain, instruments are mainly dedicated to assessing body functions, specifically sensory-motor functions. The mental function has received lower attention, and validated instruments only address executive function and attention. This is not only an issue in Iran, where occupational therapy has traditionally concentrated on physical disabilities, but it has also been observed in other countries. According to Prieto-Botella, the majority of assessment tools used by Spanish occupational therapists were dedicated to process and motor skills.[13] This intense focus on sensory-motor assessment might marginalize other crucial domains, such as mental functions, which are pivotal in comprehensively understanding and addressing children and adolescents' occupational needs and challenges.[1]

Another area of interest in the development of assessment tools for children is assessment of occupations. These tools were primarily designed to assess ADL. Romli and colleagues, in the overview of reviews of standardized occupation-based instruments for use in occupational therapy practice, stated that occupational therapy assessment tools focused on the ADL.[4] These findings were consistent with the findings of the present study in Iran. Therefore, occupational therapists should focus more on other occupational domains with few instruments, such as productivity, play, sleep, and social domains.

Despite the importance of the environment in occupational therapy, only three instruments were found for evaluating it. Among them, the Craig Hospital Inventory of Environmental Factors (CHIEF) addressed all environmental aspects, and the European Child Environment Questionnaire (ECEQ) covered all aspects except product and technology. These two instruments were only validated for children with CP. Measuring the environment with culturally adapted instruments is critical since participation occurs within a context substantially influenced by environmental factors.[94] According to Anaby and colleagues, environmental supports and barriers significantly mediated between the children and adolescents' personal factors (e.g., health and functional issues) and participation.[95]

Accurate measurement is essential in research and clinical practice, as it forms the foundation for reliable and valid data. Using appropriate measurement tools ensures that the collected data is reliable, valid, and reproducible. Hence, assessing the quality of evidence for these measurement tools is critical for researchers and practitioners. The findings of this study demonstrated differences in the quality of evidence for various assessment tools across various domains. While some instruments demonstrated high or moderate evidence quality, others lacked sufficient evidence or had issues in results reporting. These findings highlighted the need for improved methodological rigor and reporting in the field of measurement properties. Brown and Bourke-Taylor argued that although there was a growing interest in developing assessment tools for children and adolescents in occupational therapy, there was still a need for more rigorous methodology and attention to the psychometric properties of these tools.[96] In addition, Cordier and colleagues conducted a review study on child-report measures of occupational performance and found that most measures had limited psychometric quality and emphasized the need to improve the psychometric properties of existing measurement tools.[97] To ensure the reliability and validity of measurement instruments, it is crucial for researchers to adhere to standardized guidelines such as the COSMIN guidelines for study design and reporting. This will enhance the quality and transparency of their research.

The cultural and contextual relevance of assessment tools is critical for providing accurate and meaningful evaluations. While 84% of the identified tools were developed in other countries and validated in Persian, only 16% were designed specifically for the Iranian context. This reflected the challenges faced by countries such as Brazil, where the widespread use of adapted tools has raised concerns regarding cultural and contextual relevance.[12] Although the adaptation of tools from other contexts is valuable, they might not fully reflect the unique cultural, social, and environmental

factors pertinent to the Iranian context. Thus, developing indigenous tools based on the Iranian cultural and social nuances is a pivotal area for future research and development.

This scoping review provided valuable insights into the landscape of occupational therapy assessment tools for children and adolescents in Iran; however, it is not without limitations. The exclusive focus on articles published in peer-reviewed journals ensures validity and reliability. However, this might have omitted potentially valuable data and tools documented in other types of literature, such as theses and conference proceedings.

Conclusion

This scoping review highlighted the need for further development and expansion of occupational therapy assessment tools for children and adolescents in Iran. The existing tools predominantly focus on TD children and those with CP, neglecting the diverse needs of individuals with other conditions such as ASD, ADHD, and LD. There is a scarcity of assessment tools for adolescents and infants, as well as limited attention to mental function, other occupational areas, and environmental factors. The quality of evidence for these tools varies, highlighting the need for improved methodological rigor. Additionally, there is a need for culturally and contextually relevant assessment tools that represent unique cultural and social nuances of Iran. Addressing these gaps will enhance the accuracy and effectiveness of occupational therapy practice in Iran.

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Authors' Contribution

E.J: conceptualized the study and designed the methodological framework, ensuring a robust and comprehensive approach to the literature review, analyzing and interpreting the data, contributing to draft specific sections and ensuring clarity in presenting the findings; H.M: conceptualized the study and designed the methodological framework, ensuring a robust and comprehensive approach to the literature review; reviewed and edited the manuscript and enhancing its accuracy and coherence; A.J and F.D: meticulously executed the search strategy and led the process of data extraction; E.F: creating and refining visual data representations; drafted the initial manuscript. All authors reviewed and approved the final manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of Interest: None declared.

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