

APPENDIX S3
Research conducted on the participation of children with disabilities
living in low- and middle-income countries: A scoping review
Description and References of included studies

Author Year of publication Country	Study participants with a disability or chronic health condition	Age range (years)	Study aim and <i>study findings</i>	Research design Type of study	Participation or participation related construct of the study	Measurement related to participation	Barriers and/or facilitators Comparison group Control group
STUDIES THAT FOCUS ON PARTICIPATION AS A PROCESS							
Bhutia et al. (2015) (1) India Lower middle- income country	9 boys and 1 girl with cerebral palsy	13-18	To determine whether the gross motor function would improve in children with cerebral palsy who participated in a physical activity programme. <i>Exercise programmes may improve gross motor function in children with cerebral palsy, which may reduce the degree of motor disability.</i>	Quantitative Intervention	Participation in exercise programme as independent variable (outcome is gross motor function)	(Not applicable)	√ Children with cerebral palsy not participating in exercise programme as control group
Braccialli et al. (2016) (2) Brazil Upper middle- income country	85 boys and 45 girls with cerebral palsy	4-12	To analyse the impact of school participation on quality of life of Brazilian children with cerebral palsy. <i>The opportunity to experience school has a positive impact on the quality of life of children with cerebral palsy in relation to functioning, participation and physical health and emotional well-being, regardless of gender and age.</i>	Quantitative Descriptive	School attendance as the independent variable (outcome is quality of life)	(Not applicable)	√ Children attending school compared to children not attending school
Dursun et al. (2014) (3) Turkey Upper middle- income country	20 children with hearing impairment 20 children with visual impairment	8-16	To assess the participation in ice skating on the psychological well- being, self-concept and sleep quality of children with hearing or visual impairment. <i>Regular ice skating programmes may have positive effects on the psychological well-being of children with hearing impairment. Despite some positive effects,</i>	Quantitative Associations	Participation in community- based sport and leisure activity (ice skating) as independent variable (outcome is self-concept and sleep quality)	(Not applicable)	√ Children with visual impairment and children with hearing impairment as comparison

			<i>caution must be use when including visually impaired children in ice skating programmes.</i>				
Ghosh and Datta (2012) (4) India Lower middle-income country	31 children with intellectual disabilities	12-18	To determine if sports activities have been detrimental in improving functional ability of children with intellectual disabilities. <i>The number of years in sports activities was a significant factor responsible for improving the functioning of children with mild to moderate mental retardation.</i>	Quantitative Associations	Participation in sport activities (outcome is functional ability)	(Not applicable)	
Kosaner et al. (2012) (5) Turkey Upper middle-income country	14 boys and 11 girls with hearing impairment	1-9	To evaluate the influence of participating in structured music activities on children's' engagement. <i>Prelingually deafened cochlear implant users should be involved in musical activities to help them acquire skills acquired more easily by hearing peers.</i>	Quantitative Intervention	Participation in structured musical activities as independent variable (outcome is musical singing, recognition of songs, responding to music and rhythm)	(Not applicable)	
McConkey et al. (2013) (6) Serbia Ukraine (Poland) (Hungary) (Germany)	20 athletes with Intellectual disabilities	12-25	To evaluate the outcomes of a sport programme with particular reference to the processes that were perceived to enhance social inclusion. <i>Unified Sports does provide a vehicle for promoting the social inclusion of people with intellectual disabilities.</i>	Qualitative Descriptive	Participation in Youth Uniformed Sports (athletes with disabilities partner with a peer without disabilities) (outcome is social inclusion)	(Not applicable)	√ Barriers and/or facilitators
Movahedi et al. (2011) (7) Iran Upper middle-income country	107 children with visual impairment	13-19	To determine whether there was a difference in socialisation between visually impaired student-athletes and non-athletes. <i>The visually impaired student-athletes scored significantly higher than the visually impaired student non-athletes on the socialization test.</i>	Quantitative Intervention	Participation in sport (outcome is social skills/ social development)	(Not applicable)	√ Children with visual impairment but not athletes as comparison

STUDIES THAT FOCUS ON PARTICIPATION AS AN OUTCOME: Attendance only (Being there)

('being there' and measured as frequency of attending, and/or the range of diversity of activities in which and individual takes part.) *We consider inclusion to be a component of attendance.

Amaral et al. (2014) (8) Brazil Upper middle-income country	12 boys and 13 girls with cerebral palsy 12 boys and 13 girls with Down Syndrome	6-14	To compare patterns of household task participation of youth with CP, Down syndrome, and typical development. <i>Children and adolescents with cerebral palsy and Down syndrome are actively engaged in daily self-care and family-care tasks; their participation at home is not prevented by the presence of their disabilities.</i>	Quantitative Comparison	Engagement in household tasks (performance, assistance, and parental expectation of self-care and family-care activities)	√ Caregiver's perspective √ Questionnaire: Interview (CHORES: Children helping out: responsibilities, expectations, supports)	√ Children with typical development as comparison √ Children with different disabilities comparison
Badr and Mourad (2009) (9) Egypt Lower middle-income country	99 boys and 101 girls with visual impairment	10-18	To study the role of gender in coping with disability in young visually impaired school-going students. <i>Females face more difficulties in coping with visual disability.</i>	Quantitative Descriptive	Participation in society – rate the difficulty to participate	√ Child's perspective √ Questionnaire: interview (World Health Organisation Disability Assessment Scale)	√ Girls and boys with visual impairment as comparison
Bunning et al. (2014) (10) Kenya Lower middle-income country	4 boys and 5 girls with complex communication needs	4-12	To determine the impact of a home-based caregiver-implemented intervention employing augmentative and alternative communication methods. <i>Positive changes in caregiver perceptions of communication at the levels of body structure and function, and activities for communication, also some expansion to the children's social activities.</i>	Quantitative Intervention	Participation in communication – counting the range of community events in which a child could participate	√ Caregiver's perspective √ Questionnaire: Interview (The Communication Profile Adapted)	√ Barriers and/or facilitators
Rodríguez Celin and Fano (2016) (11) Argentina Upper middle-income country	7 children with osteogenesis imperfecta (Includes 11 participants 18-22)	15-18	To describe the level of independence and social, recreational and sports participation among adolescents with osteogenesis imperfecta. <i>Relations between short stature and use of wheelchair/ participation in sport. No relations between years of education and social/recreational activities.</i>	Quantitative Descriptive	Participation in sporting, social and recreational activities – categorise frequency as never, occasionally, regularly)	√ Child's perspective √ Questionnaire: Self-administrative (based on Functional Independence Measure and Instrumental Activities Measure)	

Columna et al. (2015) (12) Guatemala Lower middle-income country	13 children with visual impairment	5-18	To explore the experiences of Latino families of children with visual impairments regarding participation in physical recreation activities. <i>Benefits identified related to relaxation, socialization, and sense of independence, with minimal mention of health related benefits.</i>	Qualitative Descriptive	Participation in recreational physical activities – qualitative questions about what activities, who participate and how often.	√ Caregiver's perspective √ Semi-structured interview	√ Barriers and/or facilitators
Demiturk and Kaya (2015) (13) Turkey Upper middle-income country	15 boys and 7 girls with visual impairment	6-16	To compare the participation of adolescents with visual impairments and their sighted peers in physical education and sports lessons. <i>Children with visual impairments need to be more motivated and more encouraged to take part in various sports or physical activities.</i>	Quantitative Comparison	Participation in physical education and sports lessons – physical activities measured in frequency and duration.	√ Child's perspective √ Questionnaire: Interview (Turkish version of the International Physical Activity Questionnaire – short form)	√ Children with typical development as comparison
dos Santos et al. (2013) (14) Brazil Upper middle-income country	2 boys and 5 girls with cerebral palsy	5-10	To investigate the relationship between sit-to-stand movement, knee extensor torque and social participation in children with cerebral palsy and children with typical development. <i>Children with CP have lower knee extensor torque and restriction in social participation in dimensions related with fine motor control and language skills when compared to their typical peers.</i>	Quantitative Comparison Associations	Social participation – diversity of activities and degree of accomplishment.	√ Professional's perspective √ Questionnaire: direct observation (Life Assessment Habits for Children)	√ Children with typical development as comparison
Furtado et al. (2015) (15) Brazil Upper middle-income country	54 boys and 48 girls children with cerebral palsy	6-18	To investigate the moderating effect of environmental factors in the relationship between mobility and school participation. <i>The regression model failed to reveal a moderating effect of environmental factors in the relationship between mobility and school participation.</i>	Quantitative Associations	Participation in school – diversity and frequency of participation in six school contexts	√ Caregiver's perspective √ Questionnaire: Interview (School Function Assessment, Portuguese version of the Craig Hospital Inventory of Environmental Factors)	
Griffiths et al. (2013) (16) Nepal	66 children with acute encephalitis syndrome	0 - 14	To assess children's clinical outcomes, social participation,	Quantitative Descriptive	Social participation – diversity of participation in home, community and	√ Caregiver's perspective	

Low-income country			and the financial impact on the family. <i>Prolonged functional impairment was common following AES. Economic impact to families was substantial.</i>		school and level of participation (age expected / somewhat limited / very limited / unable to participate)	√ Questionnaire: Interview (based on Child and Adolescent Scale of Participation)	
Günel and Mutlu (2007) (17) Turkey Upper middle-income country	43 boys and 40 girls with cerebral palsy	5-12	To investigate the relationship between impairments, activity limitations, and participation restrictions in self-care, mobility, communication, social relations, learning and applying knowledge. <i>All children had at least one impairment. Participation restriction and activity competence affected functional independence.</i>	Quantitative Associations	Participation in self-care, mobility, communication, social relations, learning and applying knowledge – coded as no problem to complete problem.	√ Professional's perspective √ Direct observation: (developed own questionnaire based on the ICF and using a five level ordinal qualifier to describe level of participation)	
Higashida (2017) (18) Sri Lanka Lower middle-income country	134 youth with disabilities	15-29* (*Sri Lanka definition of youth)	To examine the association of community participation and socioeconomic factors. <i>Previous educational experiences, household economic conditions, and perceived resource information were identified.</i>	Mixed/Multi-method Associations	Participation in community activities – rate the relevance of major life activities in community, social and civic life – not at all to completely.	√ Child's perspective √ Questionnaire: Interview (Questions extracted from WHO Community-based rehabilitation indicators)	
*Matheri and Frantz (2009) (19)	129 boys and 105 girls with physical and other disabilities	14-19	To determine the physical activity levels of children with disabilities and children with typical development.	Quantitative Comparison	Participation in sport or physical activities – respond on Likert scale to report barriers and facilitators AND time spend on physical activities.	√ Child's perspective √ Questionnaire: Self-administrative (based on the Physical Activity Scale for Individuals with Physical Disabilities)	√ Children with typical development as comparison
*Frantz et al. (2011) (20) Kenya Lower middle-income country	262 children with physical disabilities, including 52 with additional chronic health conditions	14-21	To determine the levels and factors to participation in physical activity among high school students with physical disabilities. <i>Children/youth with disabilities were less physically active compared to their typically developing peers due to barriers of participation and lack of awareness.</i>	Quantitative Descriptive			√ Barriers and/or facilitators
Mehraban et al. (2016) (21) Iran	15 boys and 15 girls with cerebral palsy	8-14	To investigate the participation of children with cerebral palsy and their typically developing peers.	Quantitative Comparison	Participation in out-of-school activities – diversity, intensity, enjoyment,	√ Child's perspective √ Questionnaire: Interview (Children's Assessment of Participation and Enjoyment)	√ Children with typical development as comparison

Upper middle-income country			<i>Differences were found between the two groups. Physical disability influences the children's daily activities and socialisation.</i>		participation partner(s), location		
Memari et al. (2015) (22) Iran Upper middle-income country	52 boys and 31 girls with autism spectrum disorder	6-15	To determine participation in physical activities and investigate influence of factors influencing level of participation. <i>A low rate of physical activity participation in children with ASD that is closely associated with sociodemographic variables.</i>	Quantitative	Participation in physical and play activities – how often (frequency), how long (duration)	√ Caregiver's perspective √ Questionnaire: Self-administrative (based on Godin-Shephard Leisure Time Questionnaire, and own questions). √ Daily activity logbook	√ Barriers and/or facilitators
Mizunoya et al. (2017) (23) 15 developing countries	Estimates based on household surveys and censuses	School aged children	To analyse the gap in enrolment in both primary and secondary education between children with and without disabilities. <i>Disability reduces the probability of school attendance: neither individual characteristics nor their socio-economic and unobserved household characteristics explain the disability gap.</i>	Quantitative Associations	Participation in school – questions on attendance to identify whether a child attends school	√ Household proxy √ Household surveys and censuses	√ Children with typical development as comparison
Moyi (2017) (24) Kenya Lower middle-income country	825 children with various disabilities	5-18	To examine school enrolment, attendance, and primary school completion patterns for children with disabilities. <i>Children with disabilities face significant obstacles to schooling and less likely to enrol in school, attend school, and complete primary school.</i>	Quantitative Descriptive	Participation in school – enrolment, attendance, support to participate.	√ Household proxy √ Household surveys and questionnaire for people with disabilities √ Focus groups: people with disabilities, service providers and teachers	
Mudyahoto and Dakwa (2012) (25) Zimbabwe Low-income country	20 children with disabilities, including visual impairment, hearing impairment and physical disabilities	6-18	To discuss the extent to which learners with disabilities participate in sport within inclusive settings. <i>Children with disabilities were being side-lined with regards to participation in sport.</i>	Mixed/Multi-method Descriptive	Participation in sport – attendance and diversity of sport activities	√ Professional's perspective √ Semi-structured interview (sportsmasters and heads of institutions) √ Questionnaire: self-administered (teachers) √ Child's perspective √ Questionnaire: self-administered	√ Barriers and/or facilitators
Pal et al. (2002) (26) India	88 children with epilepsy, including 17 children with	2-18	To report the social activities of children with epilepsy and their peers in rural India.	Quantitative Comparison	Participation in social activities – diversity, level of integration (not at all; a little	√ Caregiver's perspective √ Questionnaire: Interview (developed a new age and sex-	√ Children with typical development as comparison

Lower middle-income country	cerebral palsy or intellectual disability		<i>Social integration needs active and early promotion among children with epilepsy.</i>		but much less than peers; as peers)	specific social activity questionnaire)	
Sakiz (2017) (27) Turkey Upper middle-income country	31 boys and 19 girls with mild disabilities, including intellectual disabilities, learning disabilities, orthopaedic disability, ADHD, visual, hearing, speech and language disability	8-15	To evaluate the effectiveness of a school-based programme aiming to promote achievement, attendance, positive perceptions, and social-emotional adaptation. <i>Outcomes include enhanced student attendance and achievement, social-emotional development, and positive perceptions about the school climate.</i>	Mixed/Multi-method Intervention	Participation in school - frequency of school attendance	√ Professional's perspective √ Logbook: school attendance register	√ Children with mild disabilities in two other schools served as control group
Venkatesan (2005) (28) India Lower middle-income country	89 children with developmental disabilities 51 children with autism spectrum disorder	1-11	To determine the participation of children with developmental disabilities and autism spectrum disorder in daily activities. <i>The amount of time per day spent on needed-constructive activities are meagre. Those who are not exposed to any school experience a double disadvantage.</i>	Quantitative Comparison	Participation in daily life activities	√ Caregiver's perspective √ Semi-structured interview √ Daily activity logbook (own development, time spent on daily activities)	√ Sub-sample analysis of children with autism in school and those not in school
Vosloo (2009) (29) South Africa Upper middle-income country	4 boys and 11 girls with physical disabilities	6-14	To explore the reality of implementing policy guidelines that promote the inclusion of learners with disabilities in mainstream schools. <i>Cognitive independence and mobility are the two areas that most restricted the participation. Resource availability, social support and equality were critical to facilitating the inclusion of learners at mainstream schools.</i>	Mixed/Multi-method Descriptive	Participation in school – 6 domains: school participation is measured time spend in productive activities	√ Child's perspective √ Questionnaire: Interview The Craig handicap assessment and reporting technique, CHART; The Craig hospital inventory of environmental factors, CHIEF) (Also interviewed parents and teaching staff)	√ Barriers and/or facilitators
STUDIES THAT FOCUS ON PARTICIPATION AS AN OUTCOME: Involvement only (involved while being there)							
Involvement (the experience of participation while attending that may include elements of engagement, motivation, persistence, social connection, and affect)							
Akalin and Sucuoglu (2015) (30) Turkey	3 students with special needs (1 in each special needs classroom)	8-9	To examine the effectiveness of performance feedback which was given daily to teachers following their training in classroom	Quantitative Intervention	Academic engagement	√ Professional's perspective	

Upper middle-income country			management strategies on the outcome of teacher-student dyads. <i>Performance feedback was found to have positive effects on teacher-use of target classroom management skills; for children - increased academic engagement and positive behaviours, while decreasing negative behaviours.</i>			√ Momentary time sample coding: video observation (Academic engagement Code for Instructional Structure and Student Academic Response – Mainstream Version, MS-CISSAR)	
Bastable et al. (2016) (31) South Africa Upper middle-income country	4 children with severe mobility limitations	2-6	To determine the effect of a non-powered, self-initiated mobility program on the engagement of children with severe mobility impairments. <i>Improvement in engagement during the time in which non-powered, self-initiated mobility program was introduced.</i>	Quantitative Intervention	Engagement	√ Professional's perspective √ Momentary time sample coding: video observation (The Individual Child Engagement Record – Revised, ICER-R)	
Cuhadar and Diken (2011) (32) Turkey Upper middle-income country	3 boys with autism spectrum disorder	4-6	To determine the influences of instruction performed through activity schedules on engaging-in the schedule skills and fulfilling the activity skills of pre-school children with autism, and investigating the influence of schedule observation and instruction on children's engagement in activities. <i>Instruction performed through activity schedules were effective in acquiring the engaging-in the schedule skill and fulfilling the activity skills.</i>	Quantitative Intervention	Engaging-in schedules, dealing with activities and fulfilling the activities	√ Professional's perspective √ Momentary time sample coding: video observation (developed own coding form) √ Caregiver's perspective √ Semi-structured interview for social validation	√ Barriers and/or facilitators
Diken and Mahoney (2013) (33) Turkey Upper middle-income country	35 boys and 15 girls with autism spectrum disorder	2-6	To explore the relationship between Turkish mothers' style of interaction and the engagement of their children. <i>Turkish mothers tended to engage in highly directive interactions with their children. However, a cluster analysis revealed considerable variability in mothers' style of interaction.</i>	Quantitative Associations	Engagement	√ Professional's perspective √ Momentary time sample coding: video observation (Turkish version of the Child Behavior Rating Scale, TV-CBRS, analysing the mother-child dyad)	

Hu et al. (2016) (34) China Upper middle-income country	7 children with autism spectrum disorder 4 children with developmental delay 1 child with health impairment 1 child with physical impairment	3-6	To examine the quality of engagement and interaction of children with disabilities in inclusive kindergartens across 5 types of activities. <i>There were differences in the level of engagement and interaction for children with disabilities across activities and subject areas.</i>	Quantitative Descriptive	Engagement	√ Professional's perspective √ Momentary time sample coding: video observation (The Individual Child Engagement Record – Revised, ICER-R)	
Karaaslan et al. (2011a) (35) Turkey Upper middle-income country	2 children with severe developmental disabilities	5	To examine the feasibility of Responsive Teaching with children with significant developmental delays. <i>Improvements in the mothers' responsiveness to their children and the children's levels of engagement with their parents.</i>	Quantitative (Pilot study)	Engagement	√ Professional's perspective √ Momentary time sample coding: video observation (Turkish version of the Child Behavior Rating Scale, TV-CBRS, analysing the mother-child dyad)	
Karaaslan et al. (2011b) (36) Turkey Upper middle-income country	19 children with developmental disabilities	3-6	To evaluate the effectiveness of Responsive Teaching with a sample of preschool-aged children with disabilities and their mothers. <i>The intervention group showed greater improvement in responsiveness and affect, engagement, and child development.</i>	Quantitative Intervention (randomised controlled study)	Engagement / pivotal behaviour	√ Professional's perspective √ Momentary time sample coding: video observation (Turkish version of the Child Behavior Rating Scale, TV-CBRS, analysing the mother-child dyad)	√ Children with developmental disabilities as control group
Karaaslan and Mahoney (2013) (37) Turkey Upper middle-income country	15 children with Down Syndrome	2-6	To evaluate the effectiveness of Responsive Teaching with a sample of preschool-aged children with Down Syndrome and their mothers. <i>The intervention group showed greater improvement in responsiveness and affect, engagement, and child development.</i>	Quantitative Intervention (randomised controlled study)	Engagement / interactive behaviour	√ Professional's perspective √ Momentary time sample coding: video observation (Turkish version of the Child Behavior Rating Scale, TV-CBRS, analysing the mother-child dyad)	√ Children with Down Syndrome as control group
Nunes et al. (2016) (38) Brazil Upper middle-income country	2 boys with autism spectrum disorders	3	To investigate the feasibility of using a parent-guided intervention model with Brazilian families.	Quantitative Intervention	Responsiveness in routines	√ Professional's perspective √ Momentary time sample coding: video observation (counted communication turns when child initiated interaction with caregiver)	

			<i>Both dyads increased their levels of responsiveness in at least one routine following treatment.</i>			
Ozdemir (2011) (39) Turkey Upper middle-income country	4 boys with attention-deficit/hyperactivity disorder	7	To evaluate the effectiveness of the First Step to Success early intervention programme. <i>Children displayed increased levels of academic engagement behaviours. Follow-up at 2 years indicated that although three students continued to display high levels of academic engagement behaviour, one student did not catch up to these levels of performance.</i>	Quantitative Intervention	Academic engagement	√ Professional's perspective √ Momentary time sample coding: video observation (on-task, off-task active, off-task passive)
Tapus et al. (2012) (40) Romania Upper middle-income country	4 boys with autism spectrum disorder	2-6	To investigate whether children with autism show more social engagement when interacting with the Nao robot compared to a human partner in a motor imitation task. <i>The results are mixed and suggest a high variability in reactions to the Nao robot.</i>	Quantitative Intervention	Social engagement	√ Professional's perspective √ Momentary time sample coding: video observation (counted free initiations, total initiations, eye gaze, smile/laughter, shared eye gaze)

STUDIES THAT FOCUS ON PARTICIPATION AS AN OUTCOME: Participation (attending and being involved in life situations)

'being there' and measured as frequency of attending, and/or the range of diversity of activities in which and individual takes part. We consider inclusion to be a component of attendance. Involvement (the experience of participation while attending that may include elements of engagement, motivation, persistence, social connection, and affect.

Avramović and Žegarac (2016) (41) Serbia Upper middle-income country	6 children with intellectual disabilities 9 children with multiple disabilities 3 children with mental health issues 2 children with physical disabilities	7-17	To determine the concept of children's agency and participation in the context of inclusion of children with disabilities in the evaluation of community-based services. <i>Children with disabilities can make a significant contribution to the review and enhancement of community services designed for them.</i>	Qualitative Experiences	Participation in community-based services – how children experience their own participation in these services (attendance and involvement)	√ Child's perspective √ Semi-structured interview (<i>Me at the Centre</i> visual poster to facilitate interview)	
*Bantjes et al. (2015a) (42)	7 boys and 8 girls with cerebral palsy	12-18	To explore the lived experiences of children with cerebral palsy and their involvement in physical activity. <i>Participants ask for: variety and a wider range of sports; greater recognition; coaching; and competition within programmes which are inclusive and fair.</i>	Qualitative Lived experiences	Participation in sport and physical activities – comprehensive understanding of how they experience inclusion (attendance and involvement). Address factors that promote and hinder participation.	√ Child's perspective √ Professional's perspective √ In-depth interviews	√ Barriers and/or facilitators
*Bantjes et al. (2015b) (43)			To understand what a group of adolescents with cerebral palsy perceive to be important components of programmes developed to increase their participation in sport. <i>Inclusive educational practices have impeded involvement in sport for some children with motor impairments because of resource limitations and other historic reasons.</i>				
*Conchar et al. (2016) (44) South Africa Upper middle-income country			To explore the experiences of a group of adolescents with cerebral palsy of their participation in physical activities. <i>Insight into a range of factors that promote and hinder participation in physical activity among adolescents with cerebral palsy in resource-scarce environments.</i>				

Bonney et al. (2017) (45) South Africa Upper middle-income country	43 girls with developmental coordination disorder	13-16	To evaluate the efficacy of two activity-based motor interventions in female adolescents with Developmental Coordination Disorder. <i>The two groups showed improvement in muscular strength, motor proficiency, running and agility, predilection for physical activity and generalized self-efficacy. However, there was no difference in outcomes for the two interventions.</i>	Quantitative Intervention	Participation in activities of daily living – determine both self-efficacy and perception of change in participation in everyday activities	√ Child's perspective √ Questionnaire: Self-administrative (The children's self-perceptions of adequacy in and predilection for physical activity questionnaire, CSAPPA; The participation in activities of daily living for adolescents questionnaire, PADLA-Q)	√ Girls with developmental coordination disorder as control group
Du et al. (2016) (46) China Upper middle-income country	271 boys and 704 girls with adolescent idiopathic scoliosis	12-18	To investigate relevant aspects of functioning and disability based on the International Classification of Functioning, Disability and Health for Children and Youth (ICF-CY). <i>Patients with AIS reported activity limitations and participation restrictions combined with impaired body structures and functions. Environmental factors may act as a barrier to, or facilitator of, patient functioning in daily life.</i>	Mixed/Multi-method Descriptive	Activities and participation according to the ICF-CY – attendance and children's experiences in these activities	√ Child's perspective √ Semi-structured interview (based on based on the ICF-CY categories)	√ Barriers and/or facilitators √ Three groups according to clinical outcome as comparison
Favazza et al. (2016) (47) Kenya Lower middle-income country	14 boys and 4 girls with developmental disabilities (including autism, cerebral palsy, intellectual disabilities)	3-6	To examine the adaptability, feasibility, and effectiveness of implementing a motor skills intervention (the Special Olympics' Young Athletes Curriculum). <i>The intervention is adaptable and can be feasibly implemented. Motor gains were demonstrated and a positive and multi-level impact on inclusion of children with disabilities was found</i>	Mixed/Multi-method Intervention	Participation in family and community life – increased opportunities to attend activities and children's engagement and experiences in these activities	√ Caregiver's perspective √ Semi-structured interview	
Glumac et al. (2009) (48) Guatemala Lower middle-income country	14 children with physical disabilities		To explore the experiences, perceptions and needs of caregivers receiving wheelchairs donated for nonambulatory	Qualitative Experiences	Participation in family and community life – children's and families' experiences of enhanced participation (attendance and	√ Child's perspective √ Semi-structured interview √ Observations and photos √ Caregiver's perspective	√ Barriers and/or facilitators

			children in a less-resourced country. <i>Caregivers perceived donated wheelchairs as beneficial to themselves and to their children. Support was found for the need to provide wheelchairs in collaboration with local services to support wheelchair use.</i>		involvement) due to wheelchair availability	<ul style="list-style-type: none"> √ Semi-structured interview √ Record reviews 	
Gulati et al. (2011) (49) India Lower middle-income country	21 children with different disabilities (including visual impairment, hearing impairment, seizure disorder, physical impairments, intellectual disabilities)	12-18	To understand how adolescents with disabilities can assume greater control over their rehabilitation and participation within a community-based rehabilitation programme. <i>Group empowerment, achieved through group-centred occupations, encourages adolescents to work together to address their rehabilitation challenges and agendas.</i>	Mixed/Multi-method Experiences	Participation in group (community-based rehabilitation programme) – express meaningful group participation (attendance and involvement)	<ul style="list-style-type: none"> √ Child's perspective √ Participatory methods about daily life (written/visual form such as drawing) √ Focus groups √ Photos and videos 	√ Children with typical development as comparison
Hansen et al. (2014) (50) Zambia Lower middle-income country	10 boys and 1 girl with physical disabilities, including cerebral palsy, spina bifida, cerebral malaria, spinal muscle atrophy	2-21	To examine the barriers to participation amongst children with disabilities in Lusaka, Zambia. <i>Mothers of a child with a disability plays a significant role in her child's social participation.</i>	Qualitative Experiences	Participation in communication, activities of daily living, mobility, play, school and community activities – attendance and children's experiences in these activities	<ul style="list-style-type: none"> √ Caregiver's perspective √ Semi-structured interview 	√ Barriers and/or facilitators
Hui et al. (2018) (51) Guinea Sierra Leone Togo Niger Zambia Malawi	30 children with disabilities		To explore the gendered experiences of children with disabilities in West and East Africa in inclusive educational settings. <i>Boys and girls experienced similar cases of social exclusion at school. Girls with disabilities were further hindered by societal biases against their educational potential and by sexual abuse. Boys with disabilities were stereotyped as more capable, their experiences of emotional and physical violence were often overlooked.</i>	Qualitative Experiences	Participation in school – children's experiences of attendance (inclusion) and involvement	<ul style="list-style-type: none"> √ Child's perspective √ Professional's perspective √ Semi-structured interview √ Focus groups 	<ul style="list-style-type: none"> √ Barriers and/or facilitators √ Girls and boys with disabilities as comparison

Sunday and Gretschel (2016) (52) South Africa Upper middle-income country	2 children with physical disabilities	8-9	To explore the impact of powered mobility on the exploratory play of two children with physical disabilities. <i>The provision of powered mobility is promoting the participation of physically disabled children in exploratory play.</i>	Qualitative Intervention	Participation in exploratory play – gathered data from 3 sources to determine opportunities (attendance) and experience (involvement)	<ul style="list-style-type: none"> √ Professional's perspective √ Direct observation: based on The Kid Play Profile √ Caregiver's and siblings' perspectives: In-depth interviews (based on Takata's Play History) Photovoice (parent's capture images that represent change in play)
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STUDIES THAT FOCUS ON CHILD-RELATED CONCEPTS (prerequisites for participation)

Preferences (the interests or activities that holds meaning or are valued)

Activity competence (the ability to execute the activity being undertaken according to an expected standard; includes cognitive, physical, and affective skills and abilities. Activity competence can be measured as capacity, capability or performed skill.)

Capability (skills and abilities that the child can use in a daily environment.)

Capacity (best ability of the child within a structured environment like that created for test-taking.)

Performance (skills and abilities the child uses in everyday settings.)

Sense of self (intra-personal factors related to confidence, satisfaction, self-esteem and self-determination) (children's agency)

Self-regulation (executive processes that enable the individual to direct and monitor their thinking, emotions, actions, and interactions.)

Adeniyi and Omigbodun (2016) (53) Nigeria Lower middle-income country	16 boys and 14 girls with intellectual disabilities	12-19	To investigate the effect of a social skills training intervention. <i>The social skills of pupils with intellectual disability improved.</i>	Quantitative Intervention	Social skills and social behaviour √ Activity competence	√ Caregiver's perspective √ Questionnaire: Self-administrative (Matson Evaluation of Social Skills for individuals with severe mental retardation, MESSIER)	
Aykut (2012) (54) Turkey Lower middle-income country	4 children with intellectual disabilities	Primary school students	To investigate the effect of strategies in teaching daily living skills. <i>Most-to-least prompt procedure and constant-time delay strategies showed effectiveness in maintenance and generalization for daily living skills.</i>	Quantitative Intervention	Daily living skills (cooking, sewing) √ Activity competence	√ Professional's perspective √ Direct observation: Task analysis of two daily life activities	
Bashash and Latifian (2008) (55) Iran Upper middle-income country	22 boys and 32 girls with Intellectual disabilities	12-15	To compare the effect of social problem-solving scripts on three groups of children: those with disabilities, those without disabilities but poor social skills, and children with typical development. <i>Children with disabilities were less mature in their emotions, used ineffective self-regulation strategies, and have goals that are not constructive, compared to the other two groups of students.</i>	Quantitative Descriptive	Emotions and self-regulation √ Self-regulation	√ Child's perspective √ Semi-structured interview	√ Children with typical development and children without disabilities but poor social skills as comparison
De Brito Brandão et al. (2012) (56) Brazil Upper middle-income country	85 boys and 64 girls with cerebral palsy	4-13	To determine the relation between gross motor and hand function levels and clusters of functional performance in children with cerebral palsy. <i>The findings support the adequacy of functional</i>	Quantitative Associations	Daily functioning on self-care and mobility √ Activity competence	√ Professional's perspective √ Questionnaire: self-administered (Pediatric Evaluation of Disability Inventory, PEDI)	√ Four groupings of children according to functional repertoire

<i>classifications and functioning repertoires.</i>							
dos Santos et al. (2015) (57) Brazil Upper middle-income country	7 boys and 2 girls with cochlear-implants and cerebral palsy	2-7	To review the progress of the hearing and language in cochlear-implanted children with cerebral palsy and to establish a comparative progress of hearing and language vs. clinical and functional characteristics. <i>The outcomes varied, as two children achieved hearing comprehension in open-set evaluations. Only one of the subjects had any spoken language at the single-word level.</i>	Quantitative Descriptive	Functional abilities and level of independence √ Activity competence	√ Professional's perspective √ Questionnaire: self-administered (Pediatric Evaluation of Disability Inventory, PEDI)	
Duarte et al. (2014) (58) Brazil Upper middle-income country	24 children with cerebral palsy	5-12	To determine the effects of gait training combined with transcranial direct-current stimulation over the primary motor cortex on balance and functional performance in children with cerebral palsy. <i>Gait training on a treadmill combined with anodal stimulation of the primary motor cortex led to improvements in static balance and functional performance in children with cerebral palsy.</i>	Quantitative Intervention (randomised controlled study)	Functional performance √ Activity competence	√ Caregiver's perspective √ Questionnaire: interview (Pediatric Evaluation of Disability Inventory, PEDI)	√ Children with cerebral palsy as control group
Elbasan et al. (2013) (59) Turkey Lower middle-income country	41 children with cerebral palsy 42 children with intellectual disabilities 27 children with hearing impairment	5-7	To examine differences in the health related quality of life and the self-care and social function in daily life of children with different disabilities. <i>All the children with disabilities were different from the control group in their quality of life, self-care and social function.</i>	Quantitative Descriptive	Self-care, mobility and social function in daily life √ Activity competence	√ Caregiver's perspective √ Questionnaire: interview (Pediatric Evaluation of Disability Inventory, PEDI)	√ Children with different disabilities as comparisons √ Children with typical development as control group
Guarany et al. (2012) (60) Brazil Upper middle-income country	13 boys and 8 girls with mucopolysacchari doses	8-21	To evaluate functional capacity and joint range of motion in patients with mucopolysaccharidosis. <i>The compromise of joint mobility and functionality seems to be common in MPS I, II, III-B, IV-A,</i>	Quantitative Descriptive (Longitudinal study)	Functional capacity √ Activity competence	Younger than 8: √ Caregiver's perspective √ Questionnaire: self-administered (Pediatric Evaluation of Disability	√ Three different intervention groups (patients without Enzyme

			<i>and VI. Although these types of MPS are caused by different genetic defects, they share metabolic routes and physiopathogenic processes and present similar clinical manifestations.</i>			Inventory, PEDI) Older than 8: √ Child's perspective / Caregiver's perspective √ Questionnaire: Self-administered (Functional Independence Measure, FIM)	Replacement Therapy, ERT; patients on ERT; patients who started ERT)
*Pavão et al. (2014a) (61)	10 children with cerebral palsy	5-12	To measure and compare functional performance of children with cerebral palsy and typical development. <i>Children with cerebral palsy exhibit deficits in their level of functional performance and functional balance compared to typical children.</i>	Quantitative Descriptive	Functional performance √ Activity competence	√ Caregiver's perspective √ Questionnaire: interview (Pediatric Evaluation of Disability Inventory, PEDI)	√ Children with typical development as comparison
*Pavão et al. (2014b) (62) Brazil Upper middle-income country			To determine the relation between standing static postural control and the functional ability level in children with cerebral palsy. <i>Children with cerebral palsy had higher levels of caregiver dependence in activities of daily living.</i>				
Sachdeva and Rao (2012) (63) India Lower middle-income country	31 children with learning disabilities	10-14	To measure and compare children with learning disabilities and TD in community activity performance. <i>Children with TD attain the community living skills by 14 years. In children with learning disability the competency is not achieved.</i>	Quantitative Descriptive	Financial community living skills (money handling) √ Activity competence	√ Child's perspective √ Questionnaire: Self-administered (developed the Student's Questionnaire on Financial Community Living Skills)	√ Children with typical development as comparison
Shin et al. (2009) (64) Vietnam Lower middle-income country	30 children with intellectual disabilities	3-6	To examine the impact of a 1-year intervention for children with intellectual disabilities. <i>Children in the intervention group improved significantly in most domains of adaptive behaviours, and also performed significantly better than the control group in the areas of personal care and motor skills.</i>	Quantitative Intervention	Functioning in the domains of communication, socialisation, motor skills, and daily living. √ Activity competence	√ Caregiver's perspective √ Questionnaire: interview (Vineland Adaptive Behavior Scales, VABS)	√ Children with intellectual disabilities as control group

Tarakci et al. (2011) (65) Turkey Upper middle-income country	59 children with juvenile idiopathic arthritis	8-17	To assess the relationships between physical activity level and anxiety, depression, and functional ability. <i>Depression was related to anxiety, functional ability, and well-being in children and adolescents with JIA.</i>	Quantitative Associations	Functional ability √ Activity competence	√ Child's perspective √ Questionnaire: Self-administered (Childhood Health Assessment Questionnaire, CHAQ)	√ Children with good health as control group
Tarsuslu and Livanelioglu (2010) (66) Turkey Upper middle-income country	21 children with cerebral palsy	15-18	To investigate the relation between health related quality of life and functional status in young adults with cerebral palsy. <i>Although HRQoL in young cerebral palsied individuals seems to be more effected by parameters related to physical condition, in cerebral palsied individuals psychological and emotional aspects may be more important indicators related to HRQoL.</i>	Quantitative Associations	Functional status (basic personal activities of daily living) √ Activity competence	√ Child's perspective √ Questionnaire: Interview (Functional Independence Measure, FIM)	√ Adults with cerebral palsy (19-43) as comparison group
Unger et al. (2006) (67) South Africa Upper middle-income country	37 children with cerebral palsy	13-18	To evaluate the impact of a strength training program on gait, perceptions of body image, and functional competence. <i>Participation in a school-based strength training programme targeting multiple muscle groups can lead to improved degree of crouch gait and improve perception of body image.</i>	Mixed/Multi-method Intervention (randomised controlled study)	Perceptions of body image Functional competence √ Sense of self √ Activity competence	√ Child's perspective √ Questionnaire: self-administered (Self-perception questionnaire based on Piers Harris Children's Self-Concept Scale and a newly developed Functional performance questionnaire)	√ Children with cerebral palsy as control group

STUDIES THAT FOCUS ON MEASUREMENT OF PARTICIPATION OR PARTICIPATION-RELATED CONSTRUCT

Amaral et al. (2012) Brazil (68)	25 children with cerebral palsy	6-14	To translate and evaluate the Children Helping Out – Responsibilities, Expectations, and Supports (CHORES) questionnaire into Brazilian Portuguese. <i>The translation of the CHORES questionnaire into Brazilian Portuguese offers a unique instrument for health professionals in Brazil.</i>	Quantitative Translation	Engagement in household tasks (performance, assistance, and parental expectation of self-care and family-care activities)	√ Caregiver's perspective √ Questionnaire: Interview (CHORES: Children helping out: responsibilities, expectations, supports)	√ Children with typical development as validation supports
Andrade et al. (2012) (69) Brazil	36 boys and 24 girls with cerebral palsy	6-19	To operationalise an ICF-based approach for cerebral palsy. <i>The ICF-based approach allows a comprehensive assessment, relevant for planning interventions.</i>	Quantitative New instrument	Participation in learning and applying knowledge, communication, mobility, self-care, domestic life, inter-personal interactions and relationships, and major life areas – rate difficulty to measure performance	√ Caregiver's perspective √ Questionnaire: interview (based on the ICF categories from chapters related to activity and participation, classified according to ICF qualifiers)	√ Barriers and/or facilitators √ Children with different levels of severity as comparison
Furtado et al. (2014) (70) Brazil	28 boys and 19 girls with cerebral palsy	6-13	To translate, adapt and verify the reliability of the Brazilian Portuguese Craig Hospital Inventory of Environmental Factors (CHIEF). <i>The Brazilian version of the CHIEF was reproducible and applicable to the study sample.</i>	Quantitative Translation	Social participation – document the impact of environmental factors on social participation (frequency and magnitude of the barriers identified)	√ Caregiver's perspective √ Questionnaire: interview (Brazilian Portuguese Craig Hospital Inventory of Environmental Factors, CHIEF)	
Gunel et al. (2009) (71) Turkey	101 boys and 84 girls with cerebral palsy	4-15	To examine the relationship between the Manual Ability Classification System (MACS), the Gross Motor Function Classification System (GMFCS), and the functional status (WeeFIM) in children with cerebral palsy. <i>The use of both the GMFCS and MACS will provide an easy, practical, and simple classification of the functional status of children with CP.</i>	Quantitative Feasibility to use instruments interchangeably	Functional status and performance of children √ Activity competence	√ Professional's perspective √ Questionnaire: observation (Functional Independence Measure for Children - WeeFIM) √ Caregiver's perspective √ Questionnaire: interview (WeeFIM)	

Han et al. (2010) (72) China	75 boys and 40 girls with cerebral palsy	1-6	To compare the Fross Motor Function Measure-66 (GMFM-66) and the Pediatric Evaluation of Disability Inventory (PEDI) Functional Skills Mobility domain in a group of Chinese children with cerebral palsy. <i>The GMFM-66 and the PEDI Functional Skills Mobility domain are complementary assessments that may be used interchangeably when it is not possible to administer both.</i>	Quantitative Feasibility to use instruments interchangeably	Level of functioning of the child √ Activity competence	√ Caregiver's perspective √ Questionnaire: self-administered or interview (PEDI)	
Iglesias et al. (2006) (73) Argentina	25 boys and 48 girls with juvenile idiopathic arthritis	11-14	To develop a scale to assess functional ability in children with juvenile idiopathic arthritis. <i>CAPFUN is a new instrument in order to assess functional ability in children with JIA. Reported a good internal reliability and construct validity.</i>	Quantitative New instrument	Functional ability of children √ Activity competence	√ Professional's perspective √ Questionnaire: observation (CAPFUN, capacidad funcional = functional ability)	√ Children with good health as validation
Jacob et al. (2014) (74) Brazil	15 children with hearing impairment (using hearing aids and/or cochlear implant)	7-18	To translate and adapt the Classroom Participation Questionnaire in Portuguese. <i>The CPQ instrument was translated and culturally adapted for the Brazilian population.</i>	Quantitative Translation	Participation in the classroom – frequency (almost never to almost always) of hearing-related situations in the classroom	√ Child's perspective √ Questionnaire: self-administrative (Classroom Participation Questionnaire)	√ Children with and without the use of a personal frequency modulation system as comparison
Martínez et al. (2016) (75) Mexico	15 children with ADHD	Not reported (children in school)	To understand and measure the affective states of children with ADHD when working on an assignment. <i>KAPEAN measures some of the affective states that a child with ADHD exposes while completing an assignment. Further research is needed.</i>	Mixed/Multi-method New instrument	Level of attention, cognition and memory when playing physical and digital educational games	√ Professional's perspective √ Momentary time sample coding using 3 observational sources to evaluate affective states: Observation checklist completed by professional; review of recorded video material using the Usability Test Observation Code; review of recorded video material using the Camtasia suit.	
Nelson et al. (2016) (76) Malawi	14 children with disabilities	8-18	To determine what participation means to children in Malawi as a first step in creating a tool to measure participation of children	Mixed/Multi-method New instrument	Areas of participation: family life, social activities, structured and organised activities, activities of daily	√ Multiple perspectives : children with and without disabilities, caregivers of children with and without	√ Barriers and/or facilitators

			with and without disabilities in home and community settings. <i>This study provides concepts and ideas that may be utilized in developing a suitable measure of participation of children with disabilities for rural African settings. Many of the most important activities for all children relate to family and day-to-day social life.</i>		living, education, schooling, entertainment.	disabilities, community workers and healthcare workers/professionals. √ Semi-structured interviews √ Focus groups √ Participatory action research √ Direct observation	
Shenai and Wadia (2014) (77) India	110 children with developmental disabilities, mostly autism spectrum disorder)	2-8	To develop a scale for assessing self-care skills for Indian children with developmental delays using Indian norms. <i>The scale was found to be reliable and had a good power of discrimination. Further research is needed.</i>	Quantitative New instrument	Self-care skills √ Activity competence	√ Caregiver's perspective √ Questionnaire: interview (The self-care skills scale for children with developmental disorders)	√ Children with typical development as comparison
Tur et al. (2009) (78) Turkey	64 boys and 70 girls with cerebral palsy	0-9	To validate the Functional Independence Measure for Children (WeeFIM) in children with cerebral palsy. <i>WeeFIM is a reliable and valid instrument for evaluating the functional status of Turkish children with CP.</i>	Quantitative Validation	Functional status and performance of children √ Activity competence	√ Professional's perspective √ Questionnaire: observation (WeeFIM) √ Caregiver's perspective √ Questionnaire: interview (WeeFIM)	

* Combined individually published studies that have the same study participants.

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