

## Teachers' perception of school functionality and participation of children with cerebral palsy

Percepção dos professores sobre a funcionalidade e participação escolar de crianças com paralisia cerebral

Percepción de los profesores sobre la funcionalidad y participación escolar de niños con parálisis cerebral

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### Abstract

Purpose: To analyze the perception of teachers about the functionality and school participation of children with cerebral palsy (CP). Methods: Descriptive, exploratory, observational study with a mixed design of quantitative and qualitative approach, carried out with 14 teachers, who were interviewed in a questionnaire model, based on the International Classification of Functionality, Disability and Health (ICF). The reports were transcribed and quantified based on the domains and codes of the second level of the ICF, for better analysis. Results: The reports pointed out aspects that facilitate the participatory process of children through the attitudes of the people who make up the school support network. However, the challenges to school inclusion were highlighted, related to issues of recreation, leisure and mobility, restricting participation and environmental barriers, as for services, systems and policies related to construction, architecture, health, and education. Conclusion: Such aspects reinforce the importance of interventions focused on the individuality of the child, taking into account the entire context in which he lives, and not just the intervention limiting the modification of the affected body structures and function. Thus, the teachers interviewed focused on participation in mobility and recreation activities linked to interdisciplinary work, qualification of education professionals, and readjustments in school infrastructure as challenges for greater participation of children with CP.

**Keywords:** ICF; Disabled children; Participation; Functionality; School inclusion.

### Resumo

Objetivo: Analisar a percepção dos professores sobre a funcionalidade e a participação escolar de crianças com paralisia cerebral (PC). Métodos: Estudo descritivo, exploratório, observacional com mix design de abordagem quanti e qualitativa, realizado com 14 professoras, que foram entrevistadas em modelo de questionário, baseado na

Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF). Os relatos foram transcritos e quantificados com base nos domínios e códigos do segundo nível da CIF, para melhor análise. Resultados: Os relatos apontaram aspectos facilitadores ao processo participativo das crianças através das atitudes das pessoas que compõem a rede de suporte dos escolares. Porém se sobressaíram os desafios à inclusão escolar, relacionados às questões de recreação, lazer e mobilidade, restringindo a participação e as barreiras ambientais, quanto a serviços, sistemas e políticas relacionadas a construção, arquitetura, saúde e educação. Conclusão: Tais aspectos reforçam a importância de intervenções centradas na individualidade da criança, levando em conta todo o contexto em que ela vive, e não apenas a intervenção limitando a modificar a função e estruturas do corpo afetadas. Sendo assim, as professoras entrevistadas deram enfoque à participação nas atividades de mobilidade e recreação atrelado ao trabalho interdisciplinar, qualificação dos profissionais de educação e readequações na infraestrutura escolar como desafios para uma maior participação da criança com PC.

**Palavras-chave:** CIF; Criança com deficiência; Participação; Funcionalidade; Inclusão escolar.

### Resumen

Objetivo: Analizar la percepción de los docentes sobre la funcionalidad y participación escolar de los niños con parálisis cerebral (PC). Métodos: Estudio descriptivo, exploratorio, observacional con diseño mixto de enfoque cuantitativo y cualitativo, realizado con 14 docentes, quienes fueron entrevistados mediante un modelo de cuestionario, basado en la Clasificación Internacional del Funcionamiento, Discapacidad y Salud (CIF). Los informes fueron transcritos y cuantificados con base en los dominios y códigos del segundo nivel de la ICF, para un mejor análisis. Resultados: Los relatos señalaron aspectos que facilitan el proceso participativo de los niños a través de las actitudes de las personas que integran la red de apoyo de los estudiantes. Sin embargo, se destacaron los desafíos para la inclusión escolar, relacionados con temas de recreación, esparcimiento y movilidad, restricción de la participación y barreras ambientales, en cuanto a servicios, sistemas y políticas relacionadas con la construcción, la arquitectura, la salud y la educación. Conclusión: Estos aspectos refuerzan la importancia de las intervenciones enfocadas en la individualidad del niño, teniendo en cuenta todo el contexto en el que vive, y no solo la intervención limitando la modificación de la función y estructuras corporales afectadas. Así, los docentes entrevistados enfocaron la participación en actividades de movilidad y recreación vinculadas al trabajo interdisciplinario, la calificación de los profesionales de la educación y los reajustes en la infraestructura escolar como desafíos para una mayor participación de los niños con PC.

**Palabras clave:** CIF, Niño con deficiencia, Participación; Funcionalidad; Inclusión escolar.

## 1. Introduction

Children with cerebral palsy (CP) deal, daily, with an environment that is sometimes facilitating, sometimes as a barrier. In addition, functional variability and systemic impairment of their health condition imply the need for multiple views (Mancini et al., 2020; Chagas et al., 2008; Morgan & McGinley, 2018). In the school context, the child with CP starts to deal with new sensory-motor stimuli, social interactions, and different spaces of participation (Rézio & Formiga, 2014; Melo & Ferreira, 2009; Heidrich, Santarosa & Franco, 2012), with teachers having an important facilitating role in the process of including these children.

The inclusion of schoolchildren with CP, however, is also related to the development of inclusive and special education policies that can foster health care strategies, creation of intersectoral links, strengthening of the school space, and the distribution of responsibilities among all professionals involved (Silva, Molero & Roman, 2016; Fabrin, Nascimento & Fantacini, 2016; Senado Federal, 2016; Ministério da Educação, 2001; Ministério da Educação, 2008; Brasil, 2007).

The optimization of interprofessional communication can be performed through the International Classification of Functionality, Disability and Health (ICF) promoting the direction of strategies related to different areas of knowledge. The ICF considers the interrelationships between functionality and aspects of body structure and function, levels of activity and participation, environmental and personal factors, and its use in the school environment is important, as a space for diversities and challenges to the inclusive process of children with disabilities, as, for example, children with CP (Organização Mundial da Saúde, 2003).

Therefore, the professionals involved in monitoring/supervision must be aware of the functionality process of children with CP in the school environment, which is the main space for social interaction and interaction for this age group. These

aspects are even more integrated when considering the difficulties pointed out by the child's teachers, a fact that tends to contribute both to the therapeutic process and the school inclusion process (Anaby et al., 2017; Silva, Barata, Rabelo, Silva & Marcelino, 2020).

Given the lack of studies that analyzed the inclusive process of students with CP and the use of ICF, the need to support its applicability in the school environment, and the importance of links between the areas of health and education, this study sought to analyze, using the ICF model, the perception of teachers from a public network about the functionality and school participation of children with CP.

## 2. Methods

This is a descriptive, exploratory, observational study with a mixed design of a quanti- and qualitative approach, carried out with 14 teachers of children diagnosed with CP, enrolled in the municipal public school in Recife, Pernambuco, Brazil.

The education network of the city of Recife has 214 schools, 58 daycare centers, 19 training schools, 119 community-based schools, and 25 day-care centers, with municipal policies to promote inclusive education, through the readjustment of school spaces, shelters for children with disabilities, and professional qualifications (Recife, 2015; Recife, 2019).

The research was developed between August 2018 and March 2019, following the norms of Resolution 466/2012 of the National Council of Ethics in Research (CONEP), submitted to the Research Ethics Committee of the Health Sciences Center (CCS) of the University Federal de Pernambuco, under CAAE 92234618.0.0000.5208 and approval opinion No. 2.891.749.

### Participants

The sample was selected for convenience, based on the data collected by the municipality, considering the identification of teachers from schools located in the five municipal education zones.

Data provided by the Recife Department of Education, via the Recife Information and Planning Sector, indicated that between 2018 and 2019, there were 374 students with disabilities enrolled in the municipal public school system, of these 143 had physical disabilities. Teachers were selected based on the children's characteristics. After analyzing the reports and contacting 81 schools in the municipal network, 17 children with CP enrolled were identified. Teachers of students with CP who had associated pathologies identified in the medical report (neuromuscular, cardiorespiratory diseases, severe orthopedic deformities, severe cognitive deficit) were excluded from the study.

The study included those teachers who spent most of their school routine with the child and whose school had a supporting medical report on CP and who were enrolled in elementary school in the municipal public school in Recife.

Throughout the collection period, the record in the field diary allowed to measure the saturation of the data.

### Procedures

The data collected with the teachers was developed through meetings in the evening, in a reserved space of the school, considering the signing of the Free and Informed Consent Term (ICF) of the teacher and the guardian of the child. Children were classified, in the school environment, by identifying the type of CP by topographic distribution and level in the Gross Motor Function Classification System (GMFCS).

The GMFCS, an instrument already translated and validated for the Brazilian population (Hiratuka, Matsukura & Pfeifer, 2010) allows the level of gross motor function to be identified, classifying the child with CP into five levels: without limitations for walking (GMFCS I); walking with limitations (GMFCS II); walking with the use of manual mobility resources

(GMFCS III); self-mobility with limitations (GMFCS IV); transported in adapted wheelchairs (GMFCS V) (Palisano et al., 1997).

A data collection form was used with the teachers, containing objective questions about sociodemographic data (name, age, location) and professional training (level of education, time and place of training, frequency of participation in training on the inclusion of children with disabilities).

An individual interview was carried out, always by the same researcher, with discursive, guiding questions related to the activity, participation, and contextual factors of the child with CP in the school environment elaborated based on the ICF model. The questionnaire contained four discursive questions: "What activities in the school routine does your student with cerebral palsy have more difficulty in carrying out?"; "What are the barriers/limitations for the participation of your student with cerebral palsy in the school routine?"; "How do you think it would be possible to improve the participation of your student with cerebral palsy in the school routine?"; "Any observations regarding the child's potential (functional capacities)?". All interviews were recorded on audio for later transcription and data analysis.

## Data Analysis

The analysis of the reports considered the identification of the ICF categories based on the linkage rules suggested by Cieza et al. (2019), through the qualitative data linking process, where the main and additional contents were selected to extract the ICF categories, maintaining the context of the sentence.

The categories of the activities and participation component were stratified into activities with a positive aspect, that is, with activity and participation (functionality), and in the negative aspect, in which there was activity limitation and/or participation restriction (disability). Environmental factors were also stratified into barriers/obstacles (negative aspect) and facilitators (positive aspects), and a descriptive presentation of these findings was developed afterward (Organização Mundial da Saúde, 2013).

All transcripts were performed by three research assistants and checked for quality by two members of the research team with expertise in the use of the analysis technique.

After transcribing the audios in full and repeated readings, they were analyzed based on the study by Longo et al. (2020), where three researchers trained at the ICF read the transcripts repeatedly and grouped the texts for qualitative analysis. With this analysis, it was possible to guarantee the identification of different narratives to the categories and domains present in the ICF. The transcripts were organized by ICF domains and categories, so that, if a concept was not included in the ICF classification, it was designated the term "Unspecified".

## 3. Results

The active search in the municipal network allowed the identification of 17 children with CP with an average age of  $8.1 \pm 1.8$  years, of which 5 were classified in GMFCS I (29.40%), 5 in GMFCS II (29.40%), 4 in GMFCS IV (23.50%) and 3 in GMFCS V (17.60%).

Fourteen female teachers were interviewed, considering that two were not interviewed for dealing with children with CP who had other associated diagnoses (myopathy and severe cognitive impairment). One of the teachers interviewed dealt with two twin sisters diagnosed with CP.

As for the level of education: 11 (78.50%) had specialization and 3 (21.40%) only bachelor's degree. As for the time since graduation, 11 (78.50%) of the interviewees had more than ten years of graduation and work in the education area. All of them reported having participated in training on the inclusion of children with physical disabilities, with at least one course per year using this type of approach, according to 8 (57.10%) of the teachers interviewed.

Tables 1, 2, and 3 show the second-level categories identified for the ICF domains, as well as the frequency and percentage of citations identified in the teachers' speeches. A total of 81 ICF categories were identified in the interview transcripts (6 related to Body Structure, 12 related to Body Function, 31 linked to Activity and Participation; and 32 to Environmental Factors).

The categories most cited in the domains of Body Structure and Body Function were s730 (Structure of the Upper Limb - 37.50%) and b117 (Intellectual Functions - 26.83%), respectively.

In relation to Activity and Participation, the most cited category was d920 (Recreation and leisure - 14.29%), followed by d460 (Moving in different places - 11.69%), d820 (School education - 8, 23%), d450 (Walking - 7.79%) and d455 (Moving - 6.49%). The category d460 (Moving around in different locations) had a higher frequency of identification as a negative aspect, presenting itself as a greater restriction of participation. On the other hand, category d920 (Recreation and leisure) had a higher frequency among those with a positive aspect, not indicating disability due to the teachers' view.

In the field of Environmental Factors, the category e150 (Products and technologies related to architecture, construction, and finishing of buildings for public use) was the category most identified (10.48%) as a barrier/obstacle, whereas e330 (People in a position of authority) was the facilitator with the greatest number of codes (10.18%).

The domains are described later with illustrative quotes included in the teachers' responses, addressing the perspectives of functionality and participation in the school routine of children with CP.

### **Structure and Function of the Body**

When asked what activities of the school routine the student has more difficulty in carrying out and how they could improve the child's participation in the school routine, the teachers mentioned mainly upper limb structures (Table 1). Such difficulties and improvements, expressed in the statements of the teachers below, are evidenced by the desire to provide functional independence and improve the child's participation in terms of food: "*I think he needed other alternatives of activities... in the cafeteria, because I think he needed to eat with his hand...*" (GMFCS IV child teacher). "*(...) I would start with adaptations of furniture, adaptations for him to participate in the cafeteria, enabling him to eat with his hand.*" (GMFCS IV child teacher).

**Table 1** - Body Structure and Function domains, and second-level categories of the International Classification of Functioning, Disability and Health (ICF) identified in the reports of teachers of schoolchildren with CP.

ICF domains	ICF categories	Frequency	%	Positive aspects	Negative aspects
<i>Body structure</i>	s110 Brain structure	1	12,50%		
	s299 Eye, ears, and related structures, not specified	1	12,50%		
	s730 Upper limb structure	3	37,50%		
	s750 Lower limb structure	1	12,50%		
	s799 Structures related to the movement, not specified	1	12,50%		
	s810 Skin area structures	1	12,50%		
<b>Total of the component</b>		<b>8</b>	<b>100%</b>		
<i>Body function</i>	b117 Intellectual functions	11	26,83%	5	6
	b134 Sleep functions	2	4,88%		2
	b156 Perception functions	2	4,88%	2	
	b230 Hearing functions	8	19,51%	1	7
	b260 Proprioceptive functions	4	9,76%		4
	b265 Tactile functions	4	9,76%		4
	b280 Feeling of pain	1	2,44%		1
	b299 Sensory functions and pain, not specified	1	2,44%		1
	b510 Intake functions	4	9,76%		4
	b540 General metabolic functions	2	4,88%		2
	b740 Functions related to muscular endurance	1	2,44%		1
	b760 Functions related to the control of voluntary movement	1	2,44%		1
<b>Total of the component</b>		<b>41</b>	<b>100%</b>	<b>8</b>	<b>33</b>

Source: Research data.

Regarding the function, the categories of intellectual and auditory functions were mentioned more, so that, now the intellectual function appears positively: "*She is very intelligent.*" (GMFCS II child teacher) / "*He does not have ... he does not have any cognitive difficulties ... he is very intelligent.*" (GMFCS I child teacher); and prays negatively: "*The other difficulty is the question of stimuli from a cognitive point of view, that he really has a very important lag.*" (GMFCS IV child teacher).

As for the auditory function, the reports point to the sensory deficits that students with CP may present: "(...) *he participated in the games, he was only scared at the time of the fireworks.*" (GMFCS IV child teacher) / "(...) *at recess, I take him there to be with the boys, the noise bothers him, when the boys shout, when they speak loudly, the ringing of the bell ... everything bothers him.*" (GMFCS V child teacher).

Sensory functions in general, in addition to the auditory functions, present themselves as impairments in the functionality and participation of children with CP, being mentioned the categories of perception functions (b156), proprioceptive function (b260), tactile function (b265), pain sensations (b280) and sensory functions and pain, unspecified (b299), totaling 29.28%.

From the general point of view, it was the domains that appeared little during the interviews, demonstrating that teachers tend to perceive the functionality and school participation of children with CP in a broader way, going beyond bodily limitations.

## Activities and Participation

In the activity and participation domain, teachers brought mainly the code of recreation and leisure (d920 - 14.29%), followed by codes on mobility (d450, d455, d460), which represent 25.97% of the total. Two other important points that were highlighted by the teachers were in the areas of education (d820 - 8.23% and d835 - 1.30%) and communication (d310, d315, d329, d330, d332, d335, d349) with a total of 8.23% (Table 2).

**Table 2** - The domain of Activity and Participation, and second-level categories of the International Classification of Functionality, Disability and Health (ICF) identified in the reports of teachers of students with CP.

ICF domains	ICF categories	Frequency	%	Positive aspects	Negative aspects
<i>Activity and participation</i>	d140 Learning to read	5	2,16%	5	
	d145 Learning to write	4	1,73%	4	
	d170 Writing	2	0,87%	2	
	d210 Carrying out a single task	2	0,87%	2	
	d220 Carrying out multiple tasks	1	0,43%	1	
	d230 Carrying out daily routine	11	4,76%	11	
	d310 Communicating and receiving oral messages	1	0,43%	1	
	d315 Communicating and receiving non-verbal messages	4	1,73%	4	
	d329 Communicate and receive messages, other specified and unspecified	3	1,30%	3	
	d330 Speaking	2	0,87%	1	1
	d332 Singing	1	0,43%	1	
	d335 Producing non-verbal messages	2	0,87%	2	
	d349 Communicating and producing messages, other specified and not specified	6	2,60%	6	
	d4108 Changing the basic position of the body	5	2,16%	5	
	d430 Lifting and moving objects	1	0,43%	1	
	d450 Walking	18	7,79%	2	16
	d455 Moving around	15	6,49%	2	13
	d460 Moving around in different places	27	11,69%	3	24
	d470 Using transportation	5	2,16%	5	
	d489 Moving around using transportation, other specified and not specified	1	0,43%	1	
	d510 Washing themselves up	1	0,43%	1	
	d530 Personal hygiene related to excretions	8	3,46%	8	
	d550 Eating	8	3,46%	1	7
	d720 Complex interpersonal interactions	3	1,30%	1	2
	d729 General interpersonal interactions, other specified and not specified	9	3,90%	7	2
	d750 Informal social relationships	6	2,60%	6	
	d799 Interpersonal interaction and relationship, not specified	2	0,87%	2	
	d820 Schooling	19	8,23%	10	9
	d835 Educational life	3	1,30%	3	
	d920 Recreation and leisure	33	14,29%	16	17
	Not specified	23	9,96%	8	15
<b>Total of the component</b>		<b>231</b>	<b>100%</b>	<b>81</b>	<b>150</b>

Legend: Positive aspect refers to functionality; Negative aspect refers to activity limitation or participation restriction; Source: Research data.

With the emphasis given to the category of recreation and leisure (d920), it is possible to perceive the importance of playing in the activities and participation of these children, so that during the interview, sometimes it presents itself as a positive aspect and sometimes as a negative one, being most codes negative. When asked about what the student has the most difficulty in accomplishing and how it would be possible to improve the participation of the student with CP in the school routine, the teachers pointed out: "*Sometimes, the point of playing with the classmate, he wants to run.*" (GMFCS I child teacher); "*I think so ... games, or something like that I can use.*" (GMFCS IV child teacher), respectively.

The codes related to mobility, such as moving (d455), walking (d450), moving around in different places (d460), mainly bring up mobility restriction issues, indicated in negative aspects that portray the low participation in activities, as you can see in the following excerpts: "*... the video room and the toys are up there, so this is a problem because we would have to go up the stairs to take them.*" (GMFCS II child teacher).

During the reports, the code referring to school education (d820) was quite identified in situations where some teachers, compare children with CP with typical children: "*So, we see other children... who do not have disabilities and she read much faster ... if you do a reading, she makes a point of participating in the reading. Her oral participation is much better than when she is going to make the records, but it is not something so important when compared to this deficiency.*" (GMFCS II child teacher).

It is also possible to observe that there is a complaint of deficit of adequate materials for better participation and interaction of the child during classes, in addition to the feeling of guilt that some teachers reported: "*The problem is that I even feel guilty about not bringing a different activity every day, but I can't bring it every day.*" (GMFCS IV child teacher).

Other categories related to the school context were: performing a single task, multiple tasks, and the daily routine (d210, d220, and d230), brought as restrictions on activities of the school routine, totaling 6.06%.

The categories that refer to communication, communicate and receive oral, non-verbal, other specified and unspecified messages (d310, d315, and d329), speak (d330), sing (d332), produce non-verbal messages (d335) and communicating and producing messages, other specified and unspecified (d349), were presented as potential by the teachers, helping in the process of including children in the school context, in terms of functionality and participation.

## **Environmental Factors**

The domain with the highest number of codes identified in the teachers' reports was that of environmental factors. In this domain, the code aimed at products and technologies related to architecture, construction, and finishing of buildings for public use (e150) was the most identified as a barrier, with 10.48% (Table 3). Likewise, the services, systems, and policies related to architecture and construction (e515 - 7.34%), which, according to the teachers' reports, could be improved to facilitate the child's functionality and participation in the school environment, such as: "*I rarely let them run, because the yard has these more dangerous pilasters ...*" (GMFCS I child teacher) / "*So if there was accessibility ... a ramp that had a handrail, that she can go down with an adult accompanying, just for security reasons, would avoid her embarrassment.*" (GMFCS II child teacher) / "*I have 15 students in a room that does not fit 10, do you understand? By law, you have to be one child per square meter and you don't have that.*" (GMFCS IV child teacher).

**Table 3** - Domain of Environmental Factors and second-level categories of the International Classification of Functionality, Disability and Health (ICF) identified in the reports of teachers of schoolchildren with CP.

ICF domains	ICF categories	Frequency	%	Positive aspects	Negative aspects
<i>Environmental factors</i>	e115 Products and technologies for personal use in daily life	9	1,35%		9
	e120 Products and technologies designed to facilitate mobility and personal transport in indoor and outdoor environments	35	5,24%		35
	e130 Products and technologies for education	26	3,89%	2	24
	e140 Products and technologies for culture, recreation and sport	14	2,10%		14
	e150 Products and technologies related to the architecture, construction, and finishing of buildings for public use	70	10,48%		70
	e199 Products and technologies, unspecified	2	0,30%		2
	e310 Nuclear family	23	3,44%	13	10
	e315 Extended family	3	0,45%	3	
	e320 Friends	17	2,54%	12	5
	e325 Acquaintances, peers, colleagues, neighbors, and community members	30	4,49%	18	12
	e330 People in positions of authority	68	10,18%	49	19
	e340 Personal care providers and personal assistants	16	2,40%	5	11
	e355 Health professionals	19	2,84%	3	16
	e360 Other professionals	32	4,79%	25	7
	e399 Support and relationships, unspecified	19	2,84%		19
	e410 Individual attitudes of nuclear family members	23	3,44%	11	12
	e415 Individual attitudes of extended family members	3	0,45%	3	
	e420 Individual attitudes of friends	14	2,10%	11	3
	e425 Individual attitudes of acquaintances, peers, colleagues, neighbors, and community members	19	2,84%	16	3
	e430 Individual attitudes of people in positions of authority	67	10,03%	47	20
	e440 Individual attitudes of personal care providers and personal assistants	11	1,65%	4	7
	e450 Individual attitudes of health professionals	1	0,15%		1
	e455 Individual attitudes of other professionals	34	5,09%	26	8
	e498 Attitudes, other specified	1	0,15%		1
	e499 Attitudes, unspecified	2	0,30%		2
	e515 Services, systems and policies related to architecture and construction	49	7,34%		49
	e520 Services, systems, and policies related to open space planning	7	1,05%		7
	e540 Transport-related services, systems and policies	1	0,15%		1
	e580 Health-related services, systems and policies	11	1,65%	3	8
	e585 Education, training-related services, systems, and policies	39	5,84%	3	36
	e599 Services, systems and policies, unspecified	1	0,15%		1
	Unspecified	2	0,30%	1	1
<b>Total of component</b>		<b>668</b>	<b>100%</b>	<b>255</b>	<b>413</b>

Legend: Positive aspect refers to the facilitating aspects; Negative aspect refers to the barrier/obstacles; Source: Research data.

It is possible to perceive through these data, the characterization of a structural and systemic problem, where the environment is not adapted in a favorable way for the functionality and participation of the child with CP. Such findings may reaffirm how much an unfavorable environmental context can contribute to limiting activity and restricting the participation of children in the school space.

Another aspect identified as a barrier to better functionality and participation of the child in the school environment, is related to services, systems, and policies related to education and training (e585 - 5.84%), where teachers report that they do not feel prepared enough to deal with children with CP, who need courses focused on the student's disability, to better prepare the team: "*First... it would be training directed directly at his disability. The day-to-day, how to deal, the resources for us to use, how to use it. That there was someone who had this specific knowledge here at school to work with him.*" (Child teacher GMFCS V) / "... *I think the city [Department of Education] could highlight the issue of training, they could be more recurrent, you know? And they are more punctual about the disability and not about the general way. It would help a lot.*" (GMFCSV child teacher).

It is important to highlight in this domain, that concerning support and relationships, people in a position of authority and their attitudes (e330 - 10.18% / e430 - 10.03%) are the most identified facilitators, subjects represented by people from the school community: teachers, supporters, principals.

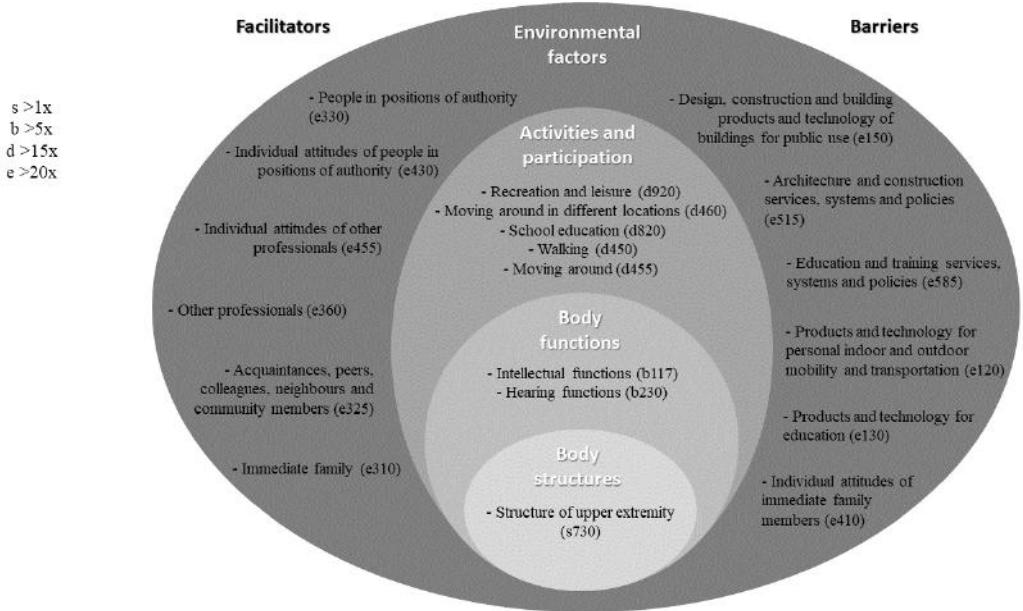
During the teachers' reports, it was possible to observe that, on the one hand, the infrastructure presents a barrier to the functionality and participation of children in the school environment, and on the other hand, these people are willing to help children in this process, facilitating and favoring school functionality and participation: "*As soon as the toy arrived... he couldn't go, because he is big and heavy... then I took advantage of a moment when three adults were there... we were holding him and he slipped.*" (GMFCS II child teacher) / "*The director, the community, has been working to fight for us to gain space... to build this to have a better quality.*" (GMFCS II child teacher).

In addition to people in a position of authority (e330), the teachers also highlight acquaintances, peers, colleagues, neighbors, and community members (e325), who are also facilitators of the inclusion process: "*Look, the other boys love him. The boys are always close to him.*" (GMFCS IV child teacher) / "...*because boys are very affectionate with him; the boys come... want to interact, caress him, want to walk around with the car seat, you know*" (GMFCS V child teacher) / "*Everyone here at school likes him a lot, the staff, and he is very cherished by everyone.*" (GMFCS V child teacher). It is also possible to see that the children themselves, classmates, show themselves as facilitators of the process, contributing to participation in moments of recreation and leisure: "*At recess, of course, she cannot turn the chair alone. But there is always a little friend who takes her for a walk, understand?*" (GMFCS IV child teacher)

Other professionals were also appointed by the teachers as facilitators and the need for them in the school context, an aspect that emphasizes the importance of interprofessional practice: "*With physical exercises... with physiotherapy... I perceive a very great evolution of him from last year square.*" (GMFCS teacher I) / "*I wish someone had this specific knowledge here at school to work with him... a therapist would be great.*" (GMFCS V teacher).

At the center of child care, the family was identified as a facilitator: "*I think that the monitoring of the family... is very good... you see that he has a present family who gives him advice, without necessarily him being limited.*" (GMFCS I child teacher); now as a barrier: "*I think she can be better assisted by her mother... I see negligence, even in hygiene.*" (GMFCS II child teacher), suggesting the need to support the family nucleus of the child with CP, since individual changes in this network can generate collective transformations, with a potential facilitator for the child's inclusion in the school context and minimize his disability.

**Figure 1 - ICF categories most identified in the reports of teachers of children with CP.**



\* Body structures identified more than 1 time; Body function identified more than 5 times; Activity and Participation identified more than 15 times; Environmental factors identified more than 20 times. Source: Model built based on the study by Longo et al (2020).

#### 4. Discussion

This study aggregates information by broadly describing the functionality and participation of children with CP in the school context, considering the perspectives of their teachers, through the link with the ICF, emphasizing the importance of the link between health and education.

As a result, it was possible to know the reality of children with CP in the school context, where it was possible to see that children participate in activities through the help and encouragement of a support network, whether they are people in authority, colleagues, and/or family, despite all the barriers that environmental factors impose on the child's daily life, especially with issues related to mobility.

The use of the ICF in the school context of children with disabilities allows an analysis of functionality, guaranteeing clinical, epidemiological, and also social approaches, which can direct intervention plans, integration of different areas of knowledge, and improvements in school inclusion (Longo et al., 2020; Andrade & Araújo, 2018).

The domains of body structure and function were rarely mentioned, showing that little interfere in this process. This is relevant and favorable information since it is still possible to find professionals giving considerable attention to changes in children's aspects, that is, functions and body structure, even with limited evidence of its benefits, while the environment receives limited attention to problems and assessments, although it is an important focus of intervention (Anaby et al., 2017).

Considering the individuality of the child with CP is a fundamental part of the school inclusion process, considering the importance of the child's factors, centered on the child's interests and preferences, promoting adapted activities that generate self-confidence, competence, sense of accomplishment, and capabilities (Rosenbaum & Gorter, 2012).

The reports focused on issues of activity and participation and environmental factors, emphasizing limitations on mobility. They are children with various potential for interaction and communication, but with limitations in mobility, with a degree of dependence for participation in recreation and leisure activities also due to environmental barriers, lack of technologies, support from professionals, and absence of systems, services, and policies real impact.

Like this study, other studies point to the issue of fragility of mobility due to the environmental barrier, as in a study in which caregivers indicate the category e150 (Products and technologies related to the architecture, construction, and finishing of buildings for public use) as the main barrier to the performance of activities and participation of the child with CP, due to the lack of adequate accessibility in the places (Earde et al., 2018).

Environmental barriers, such as the absence of products and technologies, support, attitudes, and health services can limit mobility (Brasileiro et al., 2009) and restrict the participation of children with CP in recreation and leisure activities, as demonstrated by a study that emphasizes integrated actions between government, health professionals, education and families (Longo et al., 2020).

The reports also illustrate the challenges of teachers regarding the development of pedagogical strategies aimed at schoolchildren with CP, in the creation of activities that arouse the child's interest in a participatory and inclusive space. This problem can be overcome from the basic training of pedagogues, in guaranteeing theoretical and technical support and in guaranteeing opportunities for experiences (Oliveira & Silva, 2018), as well as in the use of technological resources and the development of pedagogical strategies with assistive technologies in school spaces (Santos, 2018; Rocha & Deliberato, 2012).

Attitudinal barriers and the lack of accessibility of children with CP may be related to the lack of information about their potential, based on a social context that stigmatizes them and is still centered on disease and disabilities. Understandably, the process of struggles and achievements related to access, social inclusion, and school participation of these children goes through a socio-historical process in which the whole of society is responsible (Zanata & Treviso, 2016).

The teachers' reports reinforce the understanding that the participation of children with CP in the school routine depends on a network of multi-professional support, the permanent offer of training to education professionals, and the continuous process of awareness and deconstruction of attitudinal barriers with the agents (family, students, and professionals), improving and stimulating the functional capacities of students with CP.

The study by Rézio and Formiga (2014) pointed out the need for health professionals, such as physical therapists and occupational therapists in the school context, strengthening ties with teachers and facilitating school participation and adaptation for children with CP. In this perspective, a governmental effort is required in the implementation of policies that enable multi-professional support strategies, similar to collaborative consultancy for teachers who deal with students with physical disabilities (Tavares, Teixeira & Bispo, 2017).

Considering these aspects and the reality of public schools in Brazil, health professionals can optimize the functionality of students with CP and other health conditions, creating bridges with education professionals (Tavares, Teixeira & Bispo, 2017; Rosati & Fischer, 2014; Melo & Pereira, 2013; Pereira et al., 2016; Silva et al., 2020a).

[4,7,29-32]. Also taking into account that health professionals experience health actions in the school context as a path to this connection, in a perspective of professional training already based on interdisciplinarity and intersectionality (Pereira et al., 2016).

This study presents consistent data linked to the ICF on functionality, facilitators, and barriers to school participation of children with CP enrolled in public schools, illustrated by rich reports from teachers about the school context of these children.

There were identified in the reports of the teachers who accompany them, both restrictions of children in participation in large school spaces, as well as limitations in activities caused, mainly, by physical and attitudinal barriers, the greater need for training of education professionals and the lack of support from other professional categories to school reality.

School inclusion is a process of a daily struggle for children who depend on support from a network of people, resources, systems, and policies. This multidimensional perspective demonstrates that schoolchildren with CP require actions and care throughout the school context, considering the creation of interdisciplinary and intersectoral support networks that

ensure awareness, training, restructuring of school spaces, and closer links. Such aspects depend on the effective implementation of public policies and the permanent fight against exclusionary, segregating, backward, and capacitating models.

## 5. Conclusion

Considering the teachers' perception of the functionality and school participation of children with CP, the reports provided important perspectives for understanding the real needs of this population, and thus outline efficient interventions for this population with demands for important changes focused on the environment.

Teachers did not focus only on the limitations of body structure and function; on the contrary, these proved to be the least mentioned domains. The domain of activities and participation brought up issues of mobility, recreation and leisure, which were highlighted as restrictions for the participation of children with CP in the school context, due to environmental barriers, which are services, systems, policies, products, and technologies related to architecture, construction, finishing of buildings for public use, education and training. Within this same domain of environmental factors, the attitudes of people in a position of authority and people close to the child, proved to be important facilitators for better functionality and participation of children with CP in the school environment, helping in their inclusion process.

Such aspects reinforce the importance of interventions centered on the individuality of the child, taking into account the entire context in which they live, and not only aiming at the intervention limiting the modification of the function and structures of the affected body. Thus, interdisciplinary work is shown to be more effective, recognizing the challenges posed by the environment, by society, and removing barriers that prevent child participation.

This study still has limitations regarding the number of participants. Thus, further investigations on the theme should be carried out to better assess the functionality and participation of children with CP, not only in the school environment, and with the perspectives of different professionals, aiming to improve the understanding of the restrictions/barriers and functionality/facilitators involved. school inclusion of this population.

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