



**Universidade do Minho**  
Escola de Psicologia

Andreia Filipa Moço Afonso

**Elementary School Students' Attitudes towards Cerebral Palsy: School-Based Video Training to Increase Knowledge and Decrease Stigma**

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Dissertação de Mestrado  
Mestrado em Psicologia Aplicada

Trabalho efetuado sob a orientação do  
**Professor Doutor Pedro José Sales Luís Fonseca Rosário**  
e da  
**Professora Doutora Paula Cristina Soares Magalhães  
Silva Correia**

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## DECLARAÇÃO

Nome: Andreia Filipa Moço Afonso

Endereço eletrónico: pg30710@alunos.uminho.pt

Número do Cartão de Cidadão: 14547631

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Orientadores: Professor Doutor Pedro José Sales Luís Fonseca Rosário  
Professora Doutora Paula Cristina Soares Magalhães Silva Correia

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## **Atitudes dos Alunos do Ensino Básico acerca da Paralisia Cerebral: Uma Intervenção Escolar através de um Vídeo para Aumentar o Conhecimento e Diminuir o Estigma.**

### **Resumo**

Atualmente, a maioria das crianças com deficiência frequentam escolas regulares. Desta forma, parece importante desenvolver intervenções junto de crianças sem deficiência para aumentar a conscientização sobre a inclusão de crianças com deficiência, como crianças com Paralisia Cerebral. A presente investigação tem como objetivo avaliar a eficácia de uma intervenção de curta duração para aumentar o conhecimento e diminuir o estigma em relação a indivíduos com Paralisia Cerebral, em estudantes do ensino básico regular. Foram recrutadas 35 turmas dos 4.º e 5.º anos, perfazendo um total de 638 alunos. Os momentos de avaliação decorreram uma semana antes da visualização de um vídeo e imediatamente após a visualização do mesmo, que pretendia transmitir conhecimento declarativo sobre a Paralisia Cerebral e formas de interagir com crianças com esta problemática. Os resultados indicaram que os valores da distância social em relação à Paralisia Cerebral diminuíram e as atitudes tornaram-se mais positivas. Os resultados indicaram também que crianças que conheciam pessoas com Paralisia Cerebral apresentam níveis de distância social mais baixos do que crianças que não conhecem pessoas com esta condição. Estes resultados indicam que intervenções deste tipo são eficazes e constituem uma ótima ferramenta para ajudar na integração de crianças com deficiências nas escolas.

Palavras-chave: Paralisia Cerebral, inclusão escolar, curta-intervenção, ensino básico.

## **Elementary School Students' Attitudes towards Cerebral Palsy: School-Based Video Training to Increase Knowledge and Decrease Stigma**

### **Abstract**

Currently, the majority of children with disabilities attend mainstream schools. Thus, it seems important to develop interventions with children without impairments to raise their awareness about the importance of including children with disabilities, such as children with Cerebral Palsy. This investigation aims to assess the efficacy of a short-training on Cerebral Palsy to increase knowledge and decrease stigma towards individuals with this condition in mainstream elementary school students. Thirty-five classes of the 4<sup>th</sup> and 5<sup>th</sup> grades were recruited, making a total of 638 students. The pre-test took place one week before the video-based intervention and the post-test immediately after the visualization of the video. This video was designed to transmit declarative knowledge about Cerebral Palsy and some suggestions on how to interact with children with this condition. The results show that social distance scores towards people with Cerebral Palsy decreased and attitudes become more positive. The results also showed that children who know people with Cerebral Palsy had lower levels of social distance compared with children who do not know people with Cerebral Palsy. These results indicate that interventions of this type are effective and a useful tool to help integrate children with disabilities into mainstream schools.

Keywords: Cerebral Palsy, school inclusion, short-intervention, elementary school.

## **Elementary School Students' Attitudes towards Cerebral Palsy: School-Based Video Training to Increase Knowledge and Decrease Stigma**

*“Having cerebral palsy is when the brain stops (...) it is when someone lacks something in the brain”.*

When posed with the question, “What is Cerebral Palsy?”, a 9-year old child gave this honest description, which highlights the generalized lack of knowledge about this condition, despite being the most common physical disability in youth (Novak, Hines, Goldsmith and Barclay, 2012; Rosenbaum et al., 2007; Sankar & Mundkur, 2005). Cerebral Palsy (CP) is a non-progressive neurodevelopmental condition that mainly affects movement and posture; however, it is possible to promote functional abilities, prevent secondary impairments, and increase children's developmental capabilities through specific therapies (Rosenbaum, 2003). Many children with CP are being integrated into mainstream classes, among typically developing students who are not aware of this condition. This lack of knowledge may contribute to the development of stigmatized attitudes and behaviors towards children with CP, which may hinder their full integration within the school context. Hence, the aim of the present study is to use a video-based training program purposely designed to increase the knowledge and decrease the stigma among elementary school students towards children with CP.

### **Introduction**

#### **What is Cerebral Palsy?**

CP is considered the most common physical disability that persists throughout life (Bax et al., 2005; Novak et al., 2012), being estimated to occur in 2 children per 1000 live births (Oskoui, Coutinho, Dykeman, Jetté, & Pringsheim, 2013). CP has been described as the following:

A group of permanent disorders of the development of movement and posture causing activity limitation that are attributed to non-progressive disturbances that occurred in the developing fetal or infant brain. The motor disorders of cerebral palsy are often accompanied by disturbances of sensation, perception, cognition, communication, and behaviour, by epilepsy, and by secondary musculoskeletal problems. (Rosenbaum et al., 2007, p. 9)

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Rosenbaum and colleagues (2007) recommended that the classification of CP is conceptualized in four dimensions: motor abnormalities, accompanying impairments, anatomical and neuro-imaging findings, and causation and time.

The first dimension, concerning *motor abnormalities*, is subdivided into two categories: i) the nature and typology of the motor disorder and ii) the functional motor abilities. Individuals with CP have been grouped by the predominant type of motor disorder, and these groups are based on the predominant neuromotor abnormality: the Spastic type is characterized by weakness, hypertonia, and hyperreflexia; the Ataxic type is characterized by shaky movements that affect balance and sense of positioning in space; the Dyskinetic type is characterized by choreoathetosis and dystonia; and the Mixed type is characterized by combination damage and characterizes cases where none of the above types dominate (Rosenbaum et al., 2007; Sankar & Mundkur, 2005). Regarding the functional motor ability, it refers to the extent of limitations of the motor function. According to the World Health Organization (WHO) International Classification of Functioning Disability and Health (ICD), functional motor ability should be separately classified using objective functional scales (Bax et al., 2005; Rosenbaum et al., 2007). An example of these functional scales is the Gross Motor Function Classification System (GMFCS) that measures the “severity of movement disability” of children with CP (for more details see Morris & Bartlett, 2004).

The second dimension on CP classification, *accompanying impairments*, refers to other impairments that produce limitation in terms of activity, being sometimes more pronounced than the motor impairments. The accompanying impairments may include seizures, hearing and visual problems, emotional and behavioral issues, cognitive and attentional deficits, and later-developing musculoskeletal problems (Bax et al., 2005; Rosenbaum et al., 2007).

The third dimension that should be considered when classifying patients with CP concerns *anatomical and neuro-imaging findings*, which is subdivided into two categories: i) anatomic distribution and ii) neuro-imaging findings. The first relates with the topographic classification of CP: Quadriplegia, which involves all four limbs, being the upper limbs more affected than the lower; Hemiplegia, of which only one side of the body is affected (one arm and one leg), being the upper limbs more affected than the lower; and Diplegia, of which both legs are affected, as well as possibly the arms but to a lesser extent (Rosenbaum et al., 2007; Sankar & Mundkur,

2005). Regarding the second category, neuroimaging findings, there is not yet enough information to set a specific classification.

Finally, the last dimension, *causation and time*, refers to the origin of the clinical condition. CP results from a brain injury that occurs before the brain development is complete in the prenatal, perinatal or postnatal period. About 75-80% of CP diagnoses are due to prenatal causes, but the risk factors that seem to be more critical are prematurity and low birth weight (Sankar & Mundkur, 2005). Still, despite the multiple risk factors, the direct cause in most cases is unknown (Rosenbaum et al., 2007; Sankar & Mundkur, 2005).

Based on this classification, it becomes clear that CP is a highly complex clinical condition. It presents motor disorders and other impairments which are presumed to cause activity limitations (Bax et al., 2005). These impairments may also be present at the cognitive level (e.g., mental retardation) or at the sensory level (e.g., visual and hearing impairments) at which communication could be hindered (Rosenbaum et al., 2007; Sankar & Mundkur, 2005). Individuals with CP may also present behavioral disorders such as sleep disturbances, attention deficit hyperactivity disorder (ADHD), and, most commonly, seizures and epilepsy (Rosenbaum et al., 2007; Sankar & Mundkur, 2005). All children with CP face limitations in their daily activities; however, the extent of these limitations is presumed to be contingent on the size of the child's brain injury; this entails that the greater the injury the more limitations exist (Novak et al., 2012).

### **Stigma about Cerebral Palsy**

Disabled people tend to be labeled as different and are perceived as less than equal to others. Besides coping with the feelings of disadvantage that originate from their condition, disabled people also face stereotyped attitudes that overestimate their limitations and underestimate their capabilities (Gething, 1985). Stereotyping can be understood as the act of attributing negative characteristics to differences that are considered by others as undesirable. The concept of a stereotype is related to stigma as a component (Green, Davis, Karshmer, Marsh, & Straight, 2005); stigma itself is not solely an attribute of the person who carries the difference. It is a belief that stems from interactions between people with disabilities and surrounding people or influences that associate disabilities with negativity and subordination. What is more is that these negative judgments towards the disabled person can occur due to lack of knowledge about

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the disability (Green et al., 2005; Lindsay & McPherson, 2011). Consequently, stigmatization is an action that manifests itself in attitudes or behaviors that are discriminatory, not factual; this perspective has the potential of causing individuals to become excluded or rejected, and it can also produce further negative consequences (Green et al., 2005).

The visibility and severity of CP may lead to stigmatization and negative reactions from those who do not understand the condition, including professionals of healthcare and support systems (Gething, 1985; Read, Morton, & Ryan, 2015). For example, Laws and Kelly (2005) aimed to compare the attitudes of children regarding physical disability (i.e. CP) and intellectual disability (i.e. Down syndrome) to understand whether attitudes predicted intentions to be amicable with children with disabilities. Participants of four classes were divided into two groups, in which one group received information regarding CP and the other regarding Down syndrome. Results showed that when children received information about Down syndrome it led to more positive attitudes towards intellectual disabilities in general; however, when children were given information about CP, it led to more negative attitudes towards physical disabilities in general (Laws & Kelly, 2005). Although this study may suggest that providing information on disability to children leads to negative outcomes, i.e., decreased acceptance or more negative attitudes, several studies show otherwise. Studies performed by Altwasser & Krahe (2006), Favazza & Odom (1997), and Ison and colleagues (2010) argue that an intervention providing information and opportunities for interaction with people with disabilities leads to a decrease in negative attitudes, acceptance of people with disabilities, and an increase in knowledge about the conditions addressed.

Currently, children with disabilities are integrated into mainstream schools (Laws & Kelly, 2005; Yude, Goodman, & McConachie, 1998); however, studies have demonstrated that children with CP are still struggling to be accepted by their peers: they tend to have difficulties at building relationships with their peers compared with children without impairments (Nadeau & Tessier, 2006; Yude et al., 1998). Children with CP tend to develop a negative social status (e.g., being rejected, not being accepted, not being popular), establish fewer friendships, and are often victimized more than children without impairment (Nadeau & Tessier, 2006; Yude et al., 1998). According to children with CP, their victimization is caused by the visible aspects of their condition (Yude et al., 1998).

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Regarding how boys and girls with CP are perceived by their typically developing peers, research shows that they are not perceived equally. Girls with CP are rejected by both girls and boys without impairments since no personal or social similarity is perceptible. This scenario may be related to the tendencies of girls with CP to develop a more negative social status, establish fewer friendships, exhibit less social interaction and leadership behaviors, and become more socially isolated than their peers with and without impairments (Nadeau & Tessier, 2006). One possible explanation for this pattern may be that girls in general tend to form small and homogeneous groups based on personal and social characteristics while regarding similarity as an inclusion criterion; this behavior is less common in boys. This suggests that girls with CP tend to be judged and perceived as unequal by typically developing girls of the same age. Consequently, the lack of perceived similarities (personal or social) makes it difficult for children, particularly girls, with CP to integrate into potential social groups of the same gender; therefore, the possibility of rejection increases (Nadeau & Tessier, 2006).

For full integration of children with disabilities to be successful, it is necessary that children without impairments accept children with disabilities and provide them with positive experiences and appropriate interactions (Laws & Kelly, 2005; Yude et al., 1998). These positive relationships should be promoted so that disabled children feel included and supported during their social and emotional development (Laws & Kelly, 2005).

### **Interventions to promote positive attitudes of Cerebral Palsy**

Considering that children with CP seem to be a risk group regarding social experiences of exclusion at school, it seems important to implement programs that emphasize the similarities between children with and without disabilities at social and behavioral levels (Nadeau & Tessier, 2006). For example, a study with elementary school students was conducted with the goal of intervening in stigma in relation to mental illness by using puppets as a tool. The intervention focused on topics such as etiology, existing therapies, ways professionals can help patients, and ways society at large can help to provide support to people with the following clinical conditions: schizophrenia, dementia, and depression/anxiety (Pitre, Stewart, Adams, Bedard, & Landry, 2007). Their findings suggest that after the intervention, children's opinions about mental illness changed. Specifically, the factors of separatism (e.g., belief that individuals with mental illness should be kept away from society), stereotyping (e.g., assumption that all individuals with mental

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illness have particular characteristics), restrictiveness (e.g., view that individuals with mental illness as a threat), pessimistic prediction (e.g., assumption that individuals with mental illness will never recover), and stigmatization (e.g., the belief that individuals with mental illness are embarrassing to others) towards people with mental illnesses reduced. Conversely, after the puppets intervention, the factor of benevolence (e.g., compassion) towards mental illness increased. Overall, the children were interested in the puppets play and gained knowledge about mental illnesses (Pitre et al., 2007).

In another example of extant research involving elementary school children and the efforts to change their perception of mental illness, Shah (2004) conducted a qualitative exploratory study in an elementary school setting. The interventions were differentiated by age group (5-7; 7-9; 9-11) and were based on two components: the reading of excerpts from books about mental illness and the practice of activities, such as drawing a "mad person" and games such as "Simon says". The results showed that the children between 9 and 11 years of age, compared with their counterparts (5 to 9 years old), were more reluctant to talk about mental illness. They were also found to have more stigmatized opinions towards people with mental illness than the other groups of participating children. In contrast, children at younger ages displayed interest in the activities and group discussions. Moreover, when asked to draw "a mad person", most of the drawings exhibited unusual physical characteristics, such as extra limbs, expressions of anger or bizarre behavior. Shah (2004) concluded that lack of knowledge underlies negative attitudes, and suggested that interventions seeking to reduce stigma regarding mental illness should take place at elementary schools as early as possible.

Finally, in a study conducted by Lindsay and McPherson (2011), authors interviewed individuals with CP to understand how to develop strategies that best promote the social inclusion of children with CP into mainstream schools. Three key ideas emerged. First, the researchers recognized that it is important to build awareness and explain the clinical condition to teachers and peers so that people have more knowledge about it. Increased awareness can lead to social inclusion and, consequently, the development of essential skills in children without impairments, such as patience and respect. Secondly, individuals with CP mentioned that reporting cases of bullying would be important so that teachers could understand the problem and help solve it. Without the availability of issuing formal complaints, children with CP who experience bullying will continue to face negative consequences such as isolation. Lastly,

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individuals with CP highlighted that it would be important to develop a peer support network. Children with disabilities should be encouraged to participate in extracurricular activities in which they can apply their strengths and abilities and create their own opportunities to be included (Lindsay & McPherson, 2011).

### **Purpose of the Study**

Currently, the majority of children with disabilities attend mainstream schools; since CP is the most common physical disability in youth (Novak et al., 2012), there is high likelihood that children with CP will be included in mainstream classes and therefore be put at risk of social exclusion (Lindsay & McPherson, 2011). As extant research has shown, children's perceptions tend to change as they grow; this theory can also apply to children's perception of mental illness (Pitre et al., 2007; Shah, 2004). This finding could possibly explain why interventions designed to reduce stigma towards disability seem to have a greater impact on elementary school students than on other age groups (Pitre et al., 2007). Moreover, studies have also shown that children at typical elementary school ages undergo an important developmental process that consists of a change from an egocentric self to acquiring an external focus on others. This process may help children understand others, establish empathy, and, thus, understand the feelings and emotions of others which may lead to acceptance (Akos, 2000). Although attitudes are often difficult to change, numerous studies have shown that providing accurate information can challenge existing beliefs (e.g., Hunt & Hunt, 2004). In fact, studies report that children who have more contact or personal experiences with people with disabilities have higher levels of acceptance than children who have little or no contact with people with disabilities (Altwasser & Krahe, 2006; Favazza & Odom, 1997). Thus, it is important to encourage children without impairments to interact with children with disabilities and promote their inclusion (Laws & Kelly, 2005). Hence, the inclusion of children with disabilities can be accomplished by conducting interventions targeting children without impairments. These interventions should aim to increase awareness about certain aspects of the disability by focusing on helping children without impairments to understand the difficulties that children with disabilities face and how to help them.

Literature has shown that disability awareness programs may take various forms; however, the cognitive intervention (e.g., expose existing myths about disabilities and discuss them) combined with behavioral intervention (e.g., personal contact with people with disabilities)

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seems to be the most effective way to raise awareness (Hunt & Hunt, 2004; Ison et al., 2010).

Accordingly, the present study plans to utilize a school-based video for the training component of its short intervention. The video will discuss CP based on experiences described by children with the disorder, as well as animated videos that warn about some aspects of the clinical condition.

There is evidence that such an approach may be effective for increasing declarative knowledge of the participants regarding the clinical condition while also promoting positive attitudes towards people with CP (Martin, Rowell, Reid, Marks, & Reddihough, 2005).

In sum, this investigation aims to assess the efficacy of a short-training on CP to increase knowledge and decrease stigma towards individuals with CP in mainstream elementary school students. The training consists of one session in which children in 4<sup>th</sup> and 5<sup>th</sup> grades will view a video which has the purpose of raising awareness about this condition. The training is expected to help participants learn about CP and understand what they could do in school daily to support their colleagues with CP.

### **Method**

#### **Participants**

The sample of the current study was recruited by contacting public schools from the North of Portugal; of the 36 schools contacted, 14 accepted to participate in the present investigation. After schools' acceptance, a consent form was sent to the parents of students in the 4<sup>th</sup> and 5<sup>th</sup> grades. A total of 702 participants, from 35 classes, were authorized to participate in the investigation and 638 (90.9%) participants completed the protocol. Participants were 343 boys (53.8%) and 195 were in the 4<sup>th</sup> grade (30.6%). The ages of the participants ranged from 8 to 13 years ( $M=9.86$ ;  $SD=.721$ ). Finally, children self-identified their ethnicity as follows: 601 identified as Portuguese (94.2%), 9 as Brazilian (1.4%), 7 as gypsy (1.1%), 2 as Portuguese/Ukrainian (0.3%); five of them did not answer or give invalid answers (0.8%), and the remaining 14 participants were of different ethnicities than the others (2.2%).

#### **Measures and Instruments**

The measures used in this investigation included a demographic questionnaire and various scales to assess students' attitudes about CP, which will be described below. The study followed a repeated-measures design with a pre-test, a CP video-training, and a post-test.

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**Demographic questionnaire.** Participants were asked to indicate their gender, age, level of education, and ethnicity. They were also asked about their personal experience with CP through the following question: "Please select the types of relationships you have had with people with CP (as many as necessary): yourself, your parents, your sibling, your extended family member, your friend, your classmate, your acquaintance, or other" (adapted from Gillespie-Lynch et al., 2015). For the purpose of the present study these responses were later transformed in a dichotomous response, "I know someone with PC/ I do not know anyone with PC".

**Social Distance Scale.** The Social Distance Scale evaluates stigma towards autism and was adapted to assess stigma towards individuals with CP (adapted from Gillespie-Lynch et al., 2015). The original scale had six questions, although for the purpose of the current study one question was excluded because it did not apply to the population age of this study (i.e. "How willing would you be to marry or date a person with autism?"). The final scale consisted of five questions about participants' willingness to get involved with someone with CP at various levels of intimacy (e.g., "Do you mind having a friend with CP?", "Do you mind walking beside someone with CP?"). Participants were asked to respond on a scale from 1 to 4, from "I care a lot" (1) to "I do not care at all" (4). The responses to every item were averaged to create a composite stigma score that ranges between 1 and 4. The composite score reflects the degree to which each student feels distant or close to an individual with CP. From the mean of the scores, the students' social distance towards people with CP were inferred, with higher scores reflecting less social distance. A factor analysis with orthogonal rotation (varimax) was conducted. The 5 items of the scale load on one factor explaining 61.6% of the variance. The internal consistency of the final scale used in the present study was  $\alpha = 0.84$ .

**Attitude Scale.** The attitude scale was adapted to meet the requirements of the target population (adapted from Martin et al., 2005). The original scale had 15 statements and was designed to assess participants' attitudes, beliefs, and opinions regarding people with CP. However, for the purpose of the present study, nine questions were excluded because they did not apply to the population age of this study or to the level of comprehension of the students, (i.e. "Having a child with cerebral palsy would put the family at great disadvantage", "People should not use the word 'spastic' as an insult", "Having a child with cerebral palsy would be better than having no child at all", "People with cerebral palsy do not do anything important for the

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country”, “It is expected that people with cerebral palsy work, if possible”, “You must be careful what you say when you are with people with cerebral palsy”, “People with cerebral palsy may have normal social lives”, “Most of the people feel uncomfortable when they are with people with cerebral palsy”, “Parents of children with Cerebral Palsy should be as strict as they would be with other children”). Hence, the final scale consists of 6 statements designed to assess attitudes, beliefs, and opinions about people with CP (e.g., “People with CP are usually less intelligent than people without CP”, “Most people with CP expect special treatment”). All the statements were formulated in the negative form. Participants had to identify their level of agreement with each statement on a Likert-like scale ranging from 1 (strongly disagree) to 6 (strongly agree). Responses were averaged to create a composite attitude score that ranges between 1 and 6 (with lower scores implying stronger positive attitudes). The composite score reflects the degree to which each student perceives people with CP as different. From the mean of the scores, the students' attitudes towards people with CP were inferred, with higher scores reflecting more negative attitudes. A factor analysis with orthogonal rotation (varimax) was conducted. The 6 items of the scale saturate one factor explaining 38.3% of the variance. The internal consistency of the scale used in the present study was  $\alpha = 0.68$ .

### **Procedure**

Prior to the investigation proper, a pilot study was conducted with seven children with the purpose of testing the adequacy of the selected measures for the target population as well as the adequacy of the video content. This allowed for adjustments to be made to the video and questionnaires before the actual intervention.

The investigation was conducted with prior approval of the school boards. Participants were recruited based on the responses of the informed consent that parents were asked to fill in. The study was conducted within class and, in total, two visits were made by the investigators with an interval of one week between the visits. The first visit included the pre-test composed of two scales (Attitudes Scale and Social Distance Scale) and the demographic questionnaire. The second visit consisted of the viewing of the video followed by the post-it driven group reflection and the completion of the two aforementioned scales. The Video-Training lasted for about 20 minutes and was produced specifically for elementary-school aged students and for the purposes of this investigation. The aim of the video was to transmit declarative knowledge about CP (e.g.,

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what is CP, what are the types of CP) and some suggestions on how to interact with children with CP (Martin et al., 2005). The information was conveyed through animation videos and interviews conducted with children with CP. In these interviews, the children with CP described some of their life experiences. These children were recruited from associations of CP. After the presentation of the video, the students were asked about what they learned, and they were later asked to write their three main takeaways on a post-it, this activity was anonymous. Then, the investigator selected two or three post-its, read them aloud for the class, and initiated and mediated a discussion among students regarding the topic of the video and their opinions regarding their colleagues' statements on the post-its. This intervention was audio recorded. The procedure of the present investigation was carried out in the 35 classes separately between October and March.

During each visit, the children were informed that the questionnaires were not for evaluation and there were no right or wrong answers. The participants were asked to give their opinion about the statements and not to discuss their options with their classmates.

### **Data Analysis**

Paired *t*-tests were used to compare the means of the pre- and post-test total scores of the Social Distance and Attitudes scales. In order to compare differences between two groups (children who know someone with PC, children who do not know anyone with PC) regarding Social Distance and Attitudes the procedure used was to compare means with a one-way analysis of variance (ANOVA). The data were analyzed using IBM SPSS<sup>®</sup> software (version 24.00).

## **Results**

### **Social Distance and Attitudes**

Regarding social distance, the mean scores before and after the video-based intervention were 3.15 (SD = 0.69) and 3.36 (SD = 0.60), respectively. This change in mean scores was statistically significant (paired *t*-test,  $p = -9.51$ ). Regarding attitudes towards CP, the mean scores before and after the video-based intervention were 2.75 (SD = 0.90) and 2.35 (SD = 0.85), respectively. This change in mean scores was also statistically significant (paired *t*-test,  $p = 12.41$ ).

## **Personal experience with CP and Social Distance**

There are statistically significant differences regarding Social Distance between children who know people with CP and children who do not know children with CP both before ( $p = .003$ ) and after ( $p = .003$ ) the video-based intervention. In the group of children who knew people with CP, the mean scores before the video-based intervention were 3.35 (SD = 0.69), and in the group of children who did not know people with CP, the mean scores before the video-based intervention were 3.13 (SD = 0.69). This finding entails that the children who knew people with CP have lower Social Distance towards people with CP than the children who did not know people with CP. However, in both groups there was a rise in the mean scores between pre-test and post-test results. In terms of the group of participants who did not know people with CP, the mean scores before and after the video-based intervention were 3.13 (SD = 0.69) and 3.33 (SD = 0.61) respectively. In terms of the group where participants knew someone with PC, the mean scores were 3.35 (SD = 0.69) on the pre-test and 3.52 (SD = 0.51) on the post-test, which means that the social distance regarding people with CP dropped in both groups.

## **Personal experience with CP and Attitudes**

There are no statistically significant differences regarding Attitudes between children who knew people with CP and children who did not know anyone with CP, including both before ( $p = .079$ ) and after ( $p = .063$ ) the video-based intervention.

## **Discussion**

Progressively, children with disabilities are being included in regular schools (Laws & Kelly, 2005; Yude et al., 1998). While integration into regular education is important for these students, it also increases their risk for becoming socially excluded (Lindsay & McPherson, 2011). Thus, it seems important to develop interventions for mainstream children to raise their awareness regarding the inclusion of children with disabilities, such as children with CP, in the school context (e.g. Pitre et al., 2007; Shah, 2004; Lindsay & McPherson, 2011).

The current study aimed to assess the efficacy of a short-training to increase the knowledge and decrease the stigma of mainstream elementary students towards individuals with CP. The intervention consists of the screening of a video deliberately developed to transmit declarative knowledge about CP and the teaching of ways that children could interact with people

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with CP. After the presentation of the video, a small discussion was held on the topic so that the students could talk about the messages conveyed in the video and state their opinion regarding these messages.

The data of the present study corroborates literature by showing the efficacy of the short intervention to decrease social distance and increase positive attitudes towards people with CP. After the video-based intervention, participants showed to have less social distance (higher scores are related to less Social Distance) and more positive attitudes (lower scores are related to more positive Attitudes) towards people with CP in comparison to the data taken from before the video-based intervention. These findings are in line with the study conducted by Pitre and colleagues (2007) in which children's opinions about mental illness changed; specifically, factors of separatism, stereotyping, restrictiveness, pessimistic prediction, and stigmatization towards people with mental illnesses reduced and, conversely, the factor of benevolence towards mental illness increased.

The differences in Social Distance between children who know people with CP and children who do not know people with CP also coincides with the literature. The children who knew people with CP had lower levels of social distance compared with the children who did not know people with CP. Also, in both groups, the video-based intervention was effective because the results showed the scores in the post-test regarding social distance were higher than the results on the pre-test in both groups (higher scores are related to less Social Distance). These results are consistent with studies carried out by Altwasser and Krahe (2006) and Favazza and Odom (1997) who stated that children who have contact with people with disabilities have higher levels of acceptance than children who do not have or have little contact with people with disabilities.

Hunt and Hunt (2004) and Ison and colleagues (2010) stated that the interventions that seem to be more effective in raising awareness are comprised of cognitive and behavioral components, so the school-based video training short intervention tested in this investigation was built based on this assumption. Although there is no personal contact between the participating students and people with CP in this intervention (behavioral component), the presentation of individual experiences of children with CP in the video and consequent discussion about the topics addressed in the video (cognitive component) seemed to be effective in raising awareness to the topic. The effectiveness of the short intervention to decrease social distance and increase

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positive attitudes towards people with CP was demonstrated by the results. In general, the attitudes and social distance of the children have become more positive after the visualization of the video.

### **Limitations and Further Investigations**

It is important to encourage and promote positive attitudes in children using various forms of intervention. These interventions should begin early in the stages of mental development of children. This study shows how short-term interventions can be an effective and inexpensive way of reducing stigma and increasing knowledge associated with a topic of concern. In this case, the knowledge regarded elementary school students' perspectives on CP. This type of intervention has the potential to be conducted with a massive number of students and make a positive contribution to increasing people's awareness and acceptance of those with this condition. Although the number of parents who did not allow their children to participate in the study was not critical (9%), this factor may reflect the stigma many people have towards those with CP or the lack of knowledge regarding this clinical condition.

This study was not conducted without limitations. Due to the amount of extracurricular activities that the participants were already enrolled in, it was difficult at times to fit in an extra activity for the recruited classes. Since the data were collected in a classroom context, the researchers were not able to ensure that the children's responses to the questionnaire were related to an experience with someone with CP or if they were referring to someone with a different disease or disability out of confusion. Despite the conductance of the pilot study and the adjustments made to the questionnaires, the participating children still had difficulty understanding some of the questions which may have caused some biases. Thus, it seems important for future investigations to make more adjustments to the questionnaires so that the participants can understand all that is asked.

When the questionnaires were distributed, it was explained to the students that there were no right or wrong answers. However, some students may have given socially desirable responses in efforts to please the researchers, and they could have felt pressured to do so due to the fact that the present study is based on a socially sensitive issue. Considering the time constraints associated with the data collection, it was not possible to report the follow-up data in the present thesis. These data would have been important for determining if the knowledge about CP and

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inclusion is able to be preserved over an extended period of time. Despite these barriers, it seems important that all children participate in such interventions, not only to reduce stigma towards people who are different from mainstream children but to also increase children's knowledge about clinical conditions overall.

In future studies, the current investigators suggest the use of a control group to better understand if the changes occurred due to the intervention itself or to other factors, such as experiences with people with CP (or other clinical condition) between sessions. Another suggestion to consider is what the literature shows about the effectiveness of cognitive-behavioral interventions; meaning, it would be interesting to bring in someone with CP so that there could be personal contact and interaction between students and people with CP. The researchers could study whether the knowledge conveyed in this short intervention translates into behaviors of inclusion and engagement towards people with CP in mainstream schools by using observational measures. This short-video-based intervention could be adapted to other clinical conditions or populations. The main goal of this intervention was to help children to accept and integrate those with a clinical condition in a school setting. A possible modification for this intervention could be used to help, for instance, the gypsy community and the stigma that surrounds it.

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