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Content analysis of Portuguese individualized education programmes for young children with autism using the ICF-CY framework

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ABSTRACT: This study analysed 33 Individualised Education Programmes developed for pre-schoolers with autism, attending inclusive special education services in North Portugal, based on the International Classification of Functioning, Disability and Health for Children and Youth. The study identified dimensions of functioning addressed in the Individualised Education Programs and the correspondence between the assessment data on children's functionality and the intervention goals. The extent, to which the functioning dimensions overlap with the dimensions considered as essential to the assessment-intervention of children with autism, was also analysed. Results illustrate: the majority of domains addressed in the Portuguese Individualised Education Programmes relates to Activities and Participation; few domains are included both at the assessment and at the intervention level; Environmental Factors are not included in intervention goals; on average, the Individualised Education Programmes included only 32.8% of the dimensions considered to be essential; none of the eight essential Environmental Factors were included in any of the analysed Individualised Education Programmes, demonstrating a lack of consistency in assessment-intervention and difficulties in shifting paradigm. Results are discussed in light of the Ecological models of development and of the Diffusion of Innovation Theory.

RÉSUMÉ: Cette étude a analysé 33 Programmes d'Éducation Individualisée développés pour des enfants d'âge préscolaire atteints d'autisme, qui fréquentent des services d'éducation spéciale inclusives dans le nord du Portugal, fondés sur la Classification Internationale du Fonctionnement, du Handicap et de la Santé pour les Enfants et les Jeunes. L'étude a identifié les dimensions de fonctionnement abordées dans les Programmes d'Éducation Individualisée et la correspondance entre les données d'évaluation sur la fonctionnalité des enfants et les objectifs de l'intervention. La mesure dans laquelle les dimensions de fonctionnement chevauchent les dimensions considérées comme essentielles à l'intervention d'évaluation des enfants atteints d'autisme, a également été analysée. Les résultats montrent : la majorité des domaines abordés dans les Programmes d'Éducation Individualisée portugais se rapporte aux activités et à la participation ; peu de domaines sont inclus à la fois au niveau de l'évaluation et à celui de l'intervention ; les facteurs environnementaux ne sont pas inclus dans les objectifs de l'intervention ; en moyenne, les Programmes d'Éducation Individualisée ne comprennent que 32,8% des dimensions jugées essentielles ; aucun des huit Facteurs environnementaux essentiels n'ont été inclus dans les

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Programmes analysés d'Education Individualisée, ce qui démontre un manque de cohérence dans l' intervention d'évaluation et des difficultés à changer de paradigme. Les résultats sont discutés à la lumière des modèles écologiques du développement et de la théorie de la diffusion de l'innovation.

ZUSAMMENFASSUNG: Diese Studie analysiert 33 individualisierte Bildungsprogramme, die für Vorschulkinder mit Autismus entwickelt wurden, die spezielle Integrationsbildungseinrichtungen im Norden von Portugal besuchen. Die Programme basieren auf der Internationalen Klassifikation der Funktionsfähigkeit, Behinderung und Gesundheit für Kinder und Jugendliche. Die Studie identifiziert Dimensionen der Funktionsfähigkeiten, die in den individualisierten Bildungsprogrammen angesprochen werden und die Zusammenhänge zwischen den Daten zur Beurteilung der Funktionsfähigkeit der Kinder und den Interventionszielen. Außerdem wurde analysiert inwieweit die Dimensionen der Funktionsfähigkeit mit den Dimensionen, die für die Beurteilung-Intervention bei Kindern mit Autismus als wesentlich angesehen, überlappen. Die Ergebnisse verdeutlichen: die Mehrheit der Bereiche, die in den portugiesischen individualisierten Bildungsprogrammen angesprochen werden, bezieht sich auf Aktivitäten und Partizipation. Wenige Bereiche beziehen sowohl die Beurteilungs- als auch die Interventionsebene mit ein. Umweltfaktoren sind in den Interventionszielen nicht enthalten. Im Durchschnitt enthalten die individualisierten Bildungsprogramme nur 32,8% der Dimensionen, die als grundlegend angesehen werden. Keiner der acht essenziellen Umweltfaktoren war in einem der analysierten individualisierten Bildungsprogramme enthalten. Das verdeutlicht eine mangelnde Kohärenz der Beurteilung-Intervention und Schwierigkeiten bei der Verlagerung von Paradigmen. Die Ergebnisse werden im Hinblick auf ökologische Modelle der Entwicklung und auf die Theorie zur Verbreitung von Innovation diskutiert.

RESUMEN: En este estudio se analizaron 33 Programas de Educación Individualizada desarrollados para niños en edad preescolar con autismo, incluidos en servicios de educación especial en el norte de Portugal, basados en la Clasificación Internacional del Funcionamiento, la Discapacidad y de Salud para Niños y Jóvenes. El estudio identificó las dimensiones de funcionamiento abordadas en los Programas Individualizados de Educación y la correspondencia entre los datos de evaluación sobre la funcionalidad de los niños y los objetivos de intervención. La extensión, a la que las dimensiones de funcionamiento se superponen con las dimensiones que se consideran como esenciales para la evaluación de la intervención de los niños con autismo, también fue analizada. Resultados muestran que la mayoría de los dominios abordados en los Programas de Educación Individualizada portugueses se refiere a Actividades y Participación; pocos dominios están incluidos tanto en la evaluación y en el nivel de intervención, los factores ambientales no están incluidos en los objetivos de intervención, en promedio, los Programas de Educación Individualizada incluyen sólo el 32,8% de las dimensiones que se consideran esenciales, ninguno de los ocho factores ambientales esenciales fueron incluidos en cualquiera de los Programas de Educación individualizados analizados, lo que demuestra una falta de consistencia en la evaluación de la intervención y las dificultades para el cambio de paradigma. Los resultados se discuten a la luz de los modelos ecológicos de desarrollo y de la Teoría de la Difusión de la Innovación.

Keywords: ICF-CY; intervention; assessment; preschool; biopsychosocial; autism

A shift of paradigm in conceiving and delivering early childhood education: the biopsychosocial model and the International Classification of Functionality, Disability and Health for Children and Youth

The purpose of this study is to analyse, qualitatively, the Portuguese Individualised Education Programmes for young children with autism, attending inclusive preschool settings.

Children classified within the diagnostic category of Autism Spectrum Disorder in the International Classification of Diseases (10th revision), are characterised by variable patterns of behaviour and levels of performance, which translate into different intervention needs. Such variability of behaviour is well established and is of common knowledge even in preschool children diagnosed within Autism Spectrum Disorders category. (coded as F84 – Pervasive Developmental Disorders, in the International Classification of Diseases). The fact that children with this health condition manifest a range of behavioural problems varying in severity within a broad spectrum makes planning of educational programmes particularly challenging in the assessment-intervention process with these children. According to Wilczynski et al. (2007, 653), the development of Individualised Intervention Programmes for preschool children with autism presents challenges due to the uniqueness of this population. In spite of being a well-defined diagnostic category, the authors assert that the existence of large disparities in functional characteristics among these children is widely recognised. However, little research has been conducted on the quality of Individualised Education Programmes for children with autism.

Wilczynski et al. (2007, 663–64) state that the decision making process of the Individualised Education Programme team relies mainly on two criteria: (1) clinical judgment; and (2) solid knowledge of critical variables that influence the children's academic and life skills. Based on their clinical and educational experience, the authors give recommendations for the process of developing Individualised Education Programmes for children with autism, namely: (1) the document should address the critical variables that influence specific life skills within the Autism Spectrum, as well as academic skills; (2) academic skills should not be overlooked, thus avoiding the child's placement in a segregated environment; (3) target behaviors should be objective, clearly defined and measurable; (4) the definition of target behaviors should include information on the Environment – materials and supports available; (5) the process of decision making should be individualised; (6) objectives should be formulated for a reasonable period of time, so the child may accomplish them; (7) goals should be developmentally appropriate; and (8) a broad range of different skills should be promoted, not just specific skills in which the child appears to be more successful.

Etscheidt (2003, 51–2) also recognises the complexity of developing Individualised Education Programmes for children with autism and states that a good Programme must follow these general guidelines: (1) goals must be matched to evaluation data; (2) team members developing the Individualised Education Programme must be qualified to develop them; and (3) the methodology selected must be helpful for the student to achieve the defined goal. In addition, Etscheidt also refers the need for the Individualised Education Programme to be in line with Special Education and Early Childhood Intervention policies. Wilczynski et al. (2007) assert that an Individualised Education Programme for children requiring special education services must be comprehensive, unique for each child, with measurable goals with input from parents, advocates and

outside consultants. The document must also be reasonably designed to provide more than minimal educational benefit (Etscheidt 2003). Shriner and Destefano (2003, 147) maintain that as an official document, the Individualised Education Plan plays an important role in the decision-making process regarding students' participation. In a study conducted by the same authors, results show that professional training improved the quality of the Individualised Education Programmes, regarding documentation of students' participation. Wilson, Michaelis, and Margolis (2005, 37), highlight that Individualised Education Programme development has a 'form' feature and a 'function' feature. While *form* refers to the way in which the documents are organised according to laws, regulations and policies, *function* refers to the educational appropriateness of the programmes. According to these authors, both features should be taken into account while developing the document.

As is evident by the above review, the characteristics and elements needed in the Individualised Education Programme have been extensively described, but what has been lacking are approaches to evaluate the quality of the documents in terms of their adequacy to address the developmental and educational progress of children. However, the recent publication of the International Classification of Functioning, Disability and Health version for Children and Youth by the World Health Organisation (2007) may offer a framework and classification by which to approach intervention and evaluation of special needs education. The International Classification of Functioning, Disability and Health (ICF) is a member of the 'Family of Classifications' of the World Health Organisation along with the International Classification of Diseases, 10th revision (ICD-10 WHO 1990), which classifies disability within a medical model. In contrast to the International Classification of Diseases, the ICF classifies aspects of functioning, independently of diagnostic categories based on a biopsychosocial model of disability. Within this model, disability is not understood to be simply a condition within the person, but is seen as the product of person–environment interaction. In this line of thinking, interventions should target environmental aspects, rather than a single focus on the individual person. Within the ICF, dimensions of human functioning are documented in three different components: (1) Body Functions and Body Structures; (2) Activities and Participation; and (3) Environmental Factors. The taxonomy provides detailed descriptions of the individual functioning within each of these components, offering a common language shared across professionals and disciplines. Specific codes of functionality reflect disability when followed by the Universal Qualifier, describing the magnitude of the problem observed in a specific domain. The Universal Qualifier scale ranges from 0 (absence of problem) to 4 (total problem) (WHO 2001). By classifying specific features of functioning in a common language, the ICF provides useful data for planning individualised interventions. This model reflects the major paradigm shift of the approach to disability occurring over the last two decades defining the focus of practice, policy and research on disability as a multidimensional concept, involving both individual and environmental characteristics, as well as dynamic aspects of interactive nature (Simeonsson 2006).

This theoretical approach evolved from the conceptual contribution of the ecological and the transactional models of human development. According to Bronfenbrenner's ecological model, human development results from the dynamic interaction and mutual influence among the varied contexts in which the individual is embedded. In fact, according to this ecological approach to human development, the individual may be viewed as a core centre involved by several contextual systems: (1) the microsystem includes the proximal environment in relation to the individual, such as family

or school, for instance; (2) the mesosystem is the system level of the relationships that are established among the different elements that comprise the microsystem, which also influence the individual's development; (3) the exosystem is comprised by the range of settings in which the individual has no direct participation, but is indirectly influenced by them; and (4) covering all systems, is the macrosystem, the level of the social culture, influencing the way by which all different contexts interact with each other. In this perspective, the development is the ability to grow in accordance with the human aspirations and constraints in context (Bronfenbrenner 1979, 109–260).

Transactional models, advocated by Sameroff and Chandler (1975) argue that development is the result of transactions between the person and his/her environment, with continuous connection over time. In this process there may be individual and contextual protective factors that will enable the adoption of appropriate strategies for coping under adversity, stress or trauma. Similarly, there may be risk factors or vulnerabilities that can generate maladjustment of the person in situations of stress, adversity or trauma. According to these authors, early childhood intervention may be another element of these transactions, in order to extend the protective factors of the individual, either personally or at the contextual level, or reducing risk factors.

Following these models that emphasise the role of contextual factors in the development of the individual, the biopsychosocial model of development and disability integrates all dimensions of human functioning, from the biological level, to the psychological and also considering the contextual level. The mutual intersection of all these levels results in the developing subject. The International Classification of Functionality, Disability and Health operationalises these theoretical approaches.

The relevance of the International Classification of Functioning, Disability and Health, children and youth version (ICF-CY) as a framework for children with special education needs was reinforced by passage of recent legislation in Portugal, namely the Special Education law (DL 3/2008) and the Early Childhood Intervention law (DL281/2009). A number of contributions of the ICF-CY have been described by Lollar and Simeonsson (2005) for setting services for children. These are applicable to special education and include: (1) an emphasis on health rather than on disease; (2) a view of disability as a universal dimension of life, not as individual pathology; (3) use of neutral, non-judgemental language; (4) a framework that encompasses all dimensions of human functioning; and (5) a view of the environment as a facilitator or a barrier influencing human functioning.

Both of the laws passed in Portugal require the use of the ICF-CY classification system to describe the functional characteristics of children who are applying for services and supports. However, several problems can be identified in the implementation of the legal elements: (1) there is little research on how this classification system can be used as a tool to document children's functioning in development of Individualised Education Programmes; (2) training on the use of ICF-CY was provided only to some Special Education and Early Childhood Intervention professionals; and (3) the nature of the training courses differed among institutions. As a result of this situation, two main needs were recognised: (1) to identify and characterise the current problems in the development of Individualised Education Programmes; and (2) to promote the use of the ICF-CY as a support tool for the development of Individualised Education Programmes, by creating resources and materials that can help professionals to design these documents with high quality standards under the current Special Education and Early Childhood Intervention laws. Such resources imply mapping assessment measures with the ICF-CY, as well as defining a methodology for goal setting using

the classification as a framework. In this study we will focus on the identification of current problems in the development of Individualised Education Programmes for children with Autism Spectrum Disorders in Portugal, by using the ICF-CY framework and taxonomy.

Implementation of this effort can be informed by studies that have been conducted using the ICF-CY as a framework to analyse assessment-intervention processes for children with special needs. Nihhuis et al. (2008) analysed the Individualised Education Programmes for children with Cerebral Palsy in Netherlands in order to study the correspondence between the identified needs and the intervention goals designed for these children, as described in their interdisciplinary rehabilitation reports. Using the ICF-CY classification system as a pre-defined matrix of categories for content analysis, the authors concluded that there was a lack of correspondence between the needs documented for each child, and the goals as they were reported in the Individualised Education Programmes. The ICF-CY proved to be an important tool to analyse this correspondence.

In another application, McDougall and Wright (2008) examined the use of the ICF-CY with the Goal Attainment Scaling to connect the various phases of the therapeutic process, including assessment and intervention. The authors concluded that the ICF-CY, together with the Goal Attainment Scaling could serve to coordinate, simplify and standardise assessment processes and outcome evaluation practices for individual clients receiving pediatric rehabilitation services. Thomas-Stonell et al. (2009) analysed the parents and professionals' responses regarding children's achievement. Similarly, analyses were conducted by using the ICF-CY classification system as a pre-defined set of categories. Results showed that the ICF-CY is a powerful tool to describe expectations and perceptions of child functioning. Several studies address the usefulness of the ICF-CY in the assessment process. Among these, Fava, Muehlan, and Bullinger (2009) studied the relationship between the Disabkids' modules and the ICF-CY classification system, identifying the functionality domains addressed by this assessment measure. Also Castro, Pinto, and Maia (2011) mapped the items of the *Carolina Curriculum for Preschoolers with Special Needs* with ICF-CY domains, identifying a majority of Activity and Participation dimensions. Zakirova-Engstrand and Granlund (2009) concluded the utility of the combined used of the Eco-cultural Family Interview with the ICF-CY Environmental Factors' component to describe environmental aspects of children's functioning. These studies demonstrate the growing effort of the scientific community to use the ICF-CY as a supporting tool to improve the assessment-intervention process in child rehabilitation.

Research questions

The aim of this study was to apply the ICF-CY framework and codes to analyse 33 Portuguese Individualised Education Programmes for pre-schoolers with Autism Spectrum Disorders. Three research questions were defined: (1) what are the functionality dimensions currently reported as assessment results and intervention targets in the Individualised Education Programmes of preschoolers with autism?; (2) To what extent the functionality domains documented in the assessment process are also included in the intervention goals?; and (3) Do the Individualised Education Programmes address the functionality domains identified by experts in the field of Autism Spectrum Disorders as essential for the assessment-intervention process?

Documents

The documents analysed in this study were the Individualised Education Programmes for 33 children with Autism Spectrum Disorders served in preschools of North Portugal in the school year 2008/2009. The documents were selected on the basis of the following child characteristics: (a) the child should have a diagnosis of an Autism Spectrum Disorder according to the criteria defined in the International Classification of Diseases (10th revision) or in the Diagnostic and Statistical Manual of Mental Disorders (4th revision); (b) the child should be attending a regular early childhood education classroom, and receiving support from Early Intervention or Special Education services, thus assuring the existence of an Individualised Education Programme for the child; and (c) the child should be in the age range of four and 72 months. In Portugal, the special education services provided to these children consist on the support of a special education teacher a few hours a week, developing a collaborative work with the regular preschool teacher in the classroom where the child with disabilities is included. The children whose Individualised Education Programmes were analysed were 29 young children with autism – classified with F84.0 in the International Classification of Diseases (WHO 1990) and four young children with Asperger's syndrome – classified with F84.5 in the same diagnostic classification (WHO 1990).

Procedure

Formal authorisation to conduct this study was obtained from the administration of the northern educational area of Portugal. The directors of the sub-areas of two districts in north Portugal (Porto and Aveiro) were then contacted to obtain the information on the groups of schools within these areas that had children with the specified criteria. Once the schools were identified, a meeting was scheduled with the regular and the special education teachers, after formal authorisation was given by the school administration and by children's parents or caregivers who signed a formal informed consent form. The participant children's Individualised Education Programmes were then collected. All the information concerning children's identification was deleted, except for gender, age and diagnostic category.

Analytical approach

The study of mainly qualitative nature, utilised a Sequential Exploratory design, since we start from a qualitative analysis and then quantify the found categories (Creswell and Clark 2007). Analyses of the Individualised Education Programmes were carried out through a deductive content analysis strategy. According to Elo and Kyngäs (2008) content analysis is a method for analysing written, visual or verbal data, in a systematic way, allowing the researcher to test theoretical issues that might enhance the understanding of the data. This strategy allows the reduction of the text into a few content related categories, so that the contents in each category share the same meaning. It also enables the researcher to produce valid inferences from the data to the contexts where they derive from, thus generating new knowledge. Several aspects of the method have been underlined as strengths: (1) it is a content-sensitive method; (2) has flexibility in terms of research design; (3) can be used to understand the meaning of communication, identifying critical processes; and (4) interrelates meanings, intentions, consequences and context (Elo and Kyngäs, 2008).

Elo and Kyngäs (2008) describe two approaches to conducting Content Analysis: the Deductive and the Inductive content analysis. From the philosophical point of view regarding data analysis, Creswell (1998) highlights the existence of a continuum, which the author names as the Qualitative Analysis Spectrum, ranging from the Psychometric Perspective to the Heuristic Perspective. The Psychometric perspective has a deductive and confirmatory nature using numbers to quantify categories as well as inter-coder reliability; as the Heuristic perspective is predominantly inductive, exploratory and interpretative, inter-coder reliability becomes irrelevant. According to Elo and Kyngäs (2008), whether a deductive or an inductive approach is used depends on the research questions and general aim of the study. Inductive approaches are often used when there is little knowledge about the phenomenon, while deductive approaches are used on the basis of previous studies and knowledge, therefore much more theory testing driven. The same authors also assert these two main procedures of conducting content analysis as being *manifest* analysis as opposed to *latent* analysis. Similarly Creswell (1998) describes *deductive coding* opposing *Interpretative/Emergent Coding*. Graneheim and Lundman (2004) emphasise that, although deductive codes are more descriptive and inductive codes are more interpretative, still, both manifest and latent content analysis deal with some level of interpretation, varying in complexity and degree of abstraction. The content analysis used in the present study is closer to the psychometric perspective with a manifest nature of the analysis, deductive coding and descriptive nature of coding. In fact, our categories are pre-defined prior to the analysis, as being the ICF-CY functionality domains. Therefore, the process of analysis implied a search for meaningful and manifest contents that could be coded under the ICF-CY taxonomy following a deductive process. Categories were then quantified using percentages.

The process of conducting content analysis in the present study followed the three major phases described by Elo and Kyngäs (2008): (1) The Preparation phase; (2) The Organising phase; and (3) Reporting phase. The preparation phase starts with the selection of the unit of analysis, which can be a word or a theme. The decision about the ideal unit of analysis, as well as about which approach to adopt (deductive versus inductive analysis) was made on the preparation phase, guided mainly by the aim of the study and research questions (Elo and Kyngäs 2008). The unit of meaning is then defined – it can consist of more than one sentence. According to Graneheim and Lundman (2004), the meaning unit is the constellation of words or statements that relate to the same central meaning, also named as idea unit, textual unit, content unit or coding unit. The label of a meaning unit is the code. Codes are seen as ‘tools to think with’ or ‘heuristic devices.’

In the present study, two types of units of analysis were defined to analyse each of the Individualised Education Programme: (1) the descriptions of assessment results; and (2) the defined intervention goals. The unit of meaning was defined as each single functionality domain of the child, described either as assessment data or as an intervention goal. The functionality domain was defined according to the ICF-CY model, which guided the analysis, and could take the form of: (1) a body function or body structure; (2) an activity or form of participation or (3) an aspect of the environment. The two researchers discussed the possible units of meaning in each Individualised Education Programme in order to obtain consensus and agreement in their definition.

Elo and Kyngäs (2008) define the organising phase as the process of content analysis itself. In the Inductive Content Analysis approach, no previous theory is guiding the process of coding, leading to open coding and categories emerging from data, through

an abstraction process. Abstraction and interpretation are processes involved in the development of categories, and they might be supported by theory (Charmaz 2006). However, in the Deductive Content Analysis Approach, the aim is to test theories, categories or hypothesis already existing. In the present study, assuming a deductive content analysis approach, the ICF-CY domains of functioning were previously defined as our matrix of coding (Elo and Kyngäs 2008). The two researchers independently looked for the units of meaning that could fit the ICF-CY coding system and then discussed the final coding in order to obtain consensus.

The identified categories in this study were mutually exclusive, regarding their definition, but the same unity of meaning could be coded in more than one category, thus reflecting the multidimensionality of children's functioning. As the analysis also implied the use of the updated linking rules from Cieza et al. (2005), specifically developed for the purpose of linking content with the ICF, this training phase also ensured that both researchers were using these rules in a similar way. In addition, the units of analysis and the units of meaning were organised in the form of a protocol for each Individualised Education Programme, in order to facilitate the coding process. The ICF-CY codes were used up to the second level of classification (three digits) in order to avoid excess of codes and sub-categories. Some units of meaning that appeared too vague to be classified with a specific ICF-CY domain were classified with 'nd' (not definable), according to the published linking rules by Cieza et al. (2005). Although a number of studies have linked health content to the ICF classification system (e.g. Xiong and Hartley 2008; Duggan, Albright, and Lequerica 2008), there is minimal research that includes the systematic use of the linking rules to map developmental outcomes with the ICF-CY.

Although most of the teachers in the present study had already used the ICF-CY classification system in the development of the Individualised Education Programmes, their classifications were not included in the analyses of the documents, due to the variability found in the nature and extent of their training. In fact, not all teachers that developed these Individualised Education Programmes had training on the ICF-CY classification system, and among the professionals who had training, diversity on the nature of the training and on the level of teacher expertise on the use of the ICF-CY was found (while some teachers had several hours of training, others had one day training). Therefore, two researchers with considerable knowledge, as well as an identical training on the ICF-CY, made their own classifications of the Individualised Education programmes' content. In order to establish reliable criteria for conducting the analysis, 15% of these documents were double coded by the two researchers and inter-rater reliability was assured by discussing differences in coding. Then, one of the authors of the present study coded the remaining documents. It is also important to underline that in spite of the fact that policy recommendations state the collaborative participation of professionals and parents/caregivers in the development of the Individualised Education Programme, as a team, usually the document is developed by the special education teacher, with little collaboration of the professionals involved in the assessment-intervention process with the child, and are signed by parents afterwards. In this study, Individualised Education Programmes analysed were developed by the special education teachers in sporadic collaboration with the regular preschool teacher.

After the Individualised Education Programmes were analysed through deductive content analysis using the ICF-CY taxonomy as a matrix of previously defined categories, the ICF-CY categories found in the documents were then quantified.

Frequencies were then computed for each of the three ICF-CY components: (1) Body Functions and Structures; (2) Activities and Participations; (3) Environmental Factors. The frequencies of categories per component were computed considering their inclusion: (1) both in the description of assessment results as well as intervention goals; (2) only in the description of the assessment data; and (3) only in the intervention goals. The analyses enabled the identification of the ICF-CY domains more frequently addressed in the analysed Individualised Education Programmes, as well as the recognition of the coherence and correspondence between the functionality domains assessed and the functionality domains included in the intervention goals. In another study (Castro and Pinto 2012), national and international experts in the field of Autism Spectrum Disorders, from varied professional areas, defined the essential ICF-CY domains for the assessment-intervention process with young children with autism, resulting in 67 codes: 12 Body Functions' dimensions, 36 Activities and Participation's dimensions and 18 Environmental Factors' dimensions. The frequencies of these essential domains were also computed for each Individualised Education Programme.

Results

The results presented in Table 1 show that the majority of the functionality domains addressed in the analysed Individualised Education Programmes, mapped to the Activities and Participation component of the ICF-CY – 62.8% of the total functionality domains mentioned on the documents (657 in 1047 functionality domains). This means that the majority of functionality aspects described in these documents are executions of tasks (Activities) and forms of involvement in life situations (Participation). Results also illustrate that very few Environmental Factors were addressed in the Individualised Education Programmes of these children – only 13.7% of all the content described in the documents (143 in 1047 functionality domains). Another

Table 1. Distribution of ICF-CY components in the Individualised Education Programmes.

ICF-CY codes	Assessment and Intervention	Assessment	Intervention	Total
All ICF-CY domains (number and % of codes illustrating different units of meaning)	242 (23.1%)	542 (51.8%)	263 (25.1%)	1047 (100%)
Body Functions and Body Structures' units of meaning (% of codes)	42 (17.4%)	159 (29.3%)	42 (15.9%)	243 (23.2%)
Activities and Participation's units of meaning (% of codes)	200 (82.6%)	238 (43.9%)	219 (83.3%)	657 (62.8%)
Environmental Factors' units of meaning (% of codes)	0	143 (26.4%)	0	143 (13.7%)
Non-defined (nd)	0	2 (0.4%)	2 (0.8%)	4 (0.4%)
Mean number of codes	7.33	16.42	7.97	31.73
Inclusion of codes identified as essential by expert (% of codes)	187 (25.9%)	375 (51.9%)	187 (22.8%)	722 (100%)

relevant finding was that only 23.1% (242 of the 1047) of the functionality domains identified in the Individualised Education Programmes were included both as assessment data and in the intervention goals. Also, the description of the assessment data is much more detailed in addressing functionality domains than is the narrative concerning the intervention goals: in fact, as reported in the first line of Table 1, of all the functionality domains mentioned in the Individualised Education Programmes, 51.8% (542 in 1047) correspond to assessment data, while only 25.1% (263 in 1047) are addressed in the intervention goals. In the analysed documents, none of the intervention goals addressed the Environmental Factors' domain. Moreover, seven Individualised Education Programmes did not clearly state any intervention goal. Lastly, none of the Individualised Education Programmes included all dimensions of functioning identified by experts as essential for assessment and intervention planning with these children (Castro and Pinto forthcoming). Only 25.9% of the meaningful units expressing an essential functionality domain (code-set for Autism Spectrum Disorders) were included both in assessment data as well as in the intervention goals. Eight of these essential codes were not mentioned in any Individualised Education Programme, and they were all from the Environmental Factors component of the ICF-CY.

Among the Activities and Participation dimensions that were mentioned both in the assessment data and in the intervention goals, 'Managing one's own behaviour' was the most frequent domain being mentioned in both assessment and intervention (45.5% – 15 of the 33 documents). The domains 'Undertaking a single task,' 'Toileting' and 'Eating' appeared both in assessment and in intervention in 11 of the 33 documents (33.3%). The domains 'Speaking' and 'Fine hand use' were found in assessment and intervention in 10 of the 33 documents (30.3%). Among the Body Functions that were included in both assessment and in intervention, 'Psychosocial functions' were the most frequent, as they were mentioned in nine of the 33 cases (27.3%). 'Higher cognitive functions' appeared in assessment and intervention in seven of the 33 documents (21.2%), and 'Mental Functions of Language' appeared in six of the 33 documents (18.2%). As mentioned above, no Environmental Factors' dimensions were included in the intervention goals.

Discussion

This study examined the current state of the development of Individualised Education Programmes for children with Autism Spectrum Disorders in Portugal within the ICF-CY framework. Four major findings were identified:

- (a) The Individualised Education Programmes are addressing mostly the Activities and Participation component of the ICF-CY. In fact, the Environmental Factors component is not included in the intervention goals in any of the analysed Individualised Education Programmes. This fact suggests that interventions for young children with autism are still essentially focused on children's skills and on directly observed performance, not accounting for characteristics of the environment in which the child is embedded, that may be related with the difficulties in performing activities or with limited participation, and that might be a focus for change. This aspect is of foremost importance, since it reflects early childhood special education practices that do not address the theoretical premises postulated by the ecological models of development, which consider the continuous interaction between the child with his/her

environment (Sameroff and Chandler 1975) as well as the interaction between the several contexts and settings in which the child is embedded (Bronfenbrenner 1979) as the basis for development.

- (b) The results also suggest that, despite the fact that the ICF-CY was defined in law as a framework to describe functioning of children applying for Special Education and Early Childhood Intervention services and supports, according to the biopsychosocial model assumptions for disability, not all dimensions of children's life are being addressed in the classification process, with Environmental Features being neglected;
- (c) Minimal correspondence was found between the assessment data and the intervention goals that were designed and included in the programmes, illustrating a lack of consistency within the assessment-intervention process of young children with autism in Portugal;
- (d) Many aspects of functioning regarded by experts as essential for the assessment-intervention process in children with Autism Spectrum Disorders are not considered in the development of Individualised Education Programmes. This aspect might be revealing of the lack for a common understanding on how to describe disability in preschool children with autism. This may be suggestive of the difficulty in finding a balanced, well-grounded way that enables the development of individualised interventions that are simultaneously addressing all essential aspects of the assessment-intervention process for young children with autism.

The results seem to indicate a gap between theory and research findings concerning the biopsychosocial approach to the development of Individualised Education Programmes and its application in practice. Specifically, although elements of the child-environment interaction are emphasised in the literature on the assessment-intervention process, the examination of Individualised Education Programmes in this study using the ICF-CY framework suggests a lack of documentation concerning the environmental aspects that may be influencing child functioning. Murray (2009) has proposed that there might be several aspects contributing to this fact, in line with the Diffusion of Innovation Theory, which studies the way by which new theories and ideas are diffused within a social network. Murray (2009) states that: (1) research practices; (2) attitudes of practitioners; (3) training deficiencies; (4) philosophical differences; and (5) relationships between practitioners and researchers might be the reasons contributing to this gap. Although Murray's article focuses on clinical practice, we might want to consider these aspects as critical reasons for difficulties in shifting from the medical model to the biopsychosocial model of disability, which are manifest in professional practice. In fact, although relevant research findings support a biopsychosocial perspective when approaching development and educational issues, professionals in the fields of special education and early childhood education tend to assume a child centred model when designing assessment-intervention processes. Research practices may be a reason for this phenomenon, due to the fact that, very often, researchers do not use a language that can be easily translated into practice. Also, according to the author, practitioners often believe that scientific studies cannot directly influence their work, and choose not to read scientific papers (attitudes of practitioners). Another possible reason for the gap between researchers and practitioners is that practitioners may be lacking adequate training in how to apply scientific evidence to their everyday work

(training deficiencies). Moreover, practitioners and researchers may differ in their conceptions of human development (philosophical differences). Lastly, a very commonly cited reason for this gap, according to Murray (2009), is the inadequate relationship between researchers and practitioners for effective dissemination of research findings.

The findings of this study demonstrate that the ICF-CY can serve as a useful framework and tool in analysing, as well as in guiding the documentation of the assessment-intervention process. At the same time, they emphasise the need to address problems in training of Portuguese teachers on the development of Individualised Education Programmes and also the need to provide assessment resources and a goal setting strategy mapped with the ICF-CY taxonomy. Specifically, there is a need for professional training on: (1) Individualised Education Programme development; (2) assessment-intervention methods and strategies that enable accounting for the aspects of the child's environment when planning embedded interventions in their natural contexts; (3) planning and documenting the assessment-intervention process consistently resulting in a better match between assessed aspects and the focus of intervention efforts; and (4) the use of the ICF-CY classification framework as a basis for considering the inter-relations between the child as a whole and the objective and subjective characteristics of the natural environments. The development of materials and resources that are friendly to educational practitioners, addressing their needs, the creation of opportunities to share research findings among educational practitioners, as well as the design of solid training, are priorities for advancing research and practice in early childhood intervention. However, despite the relevance of these results, they are reflecting the Portuguese reality of special education practices for preschool children with autism. It would be interesting to conduct similar studies in other European contexts and analyse the extent to which these conclusions are applicable to other societies and whether the difficulties found in early childhood special education practices are the same. Also, it would be interesting to address whether European early special education policies are actually being put into practice by professionals and services. Our results suggest that, in Portugal, there is a lack of applicability of good practices defined in law. Future research should address these issues.

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