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Ilić, S. B.; Nikolić, S. J.; Ilić-Stošović, D. D.; Golubović, Š. S. Early Identification of Children with Developmental Delay and Behavioural Problems According to Parents Concerns in the Republic of Serbia. *Early Child Development and Care* 2020, 190 (16), 2605–2611.

<https://doi.org/10.1080/03004430.2019.1595610>.



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Early identification of children with developmental delay and behavioural problems according to parents concerns in the Republic of Serbia

ABSTRACT

The main goal of this research was to describe the type and level of parents' concerns about child development and behaviour according to the PEDS test (Parents' Evaluation of Developmental Status). The sample included 289 parents of children from three to seven years of age, from two preschool institutions in Serbia. A significantly high correlation was determined between parents' general concerns and expressed concerns with regard to behaviour ($\chi^2 = 17.86$, $df = 2$, $p < .001$) and getting along with others ($\chi^2 = 22.57$, $df = 2$, $p < .000$). A marginally significant correlation was determined between parents' general concerns and manifested concerns with regard to fine motor skills ($\chi^2 = 5.90$, $df = 2$, $p = .052$), as well as expressive language ($\chi^2 = 5.858$, $df = 2$, $p = .053$). According to the criteria of PEDS test, this research identified 56.4% of children whose development needed to be monitored, 27.7% of children who needed to be referred for detailed diagnostic procedures, and 1.7% who needed to be included in treatment or special education support.

1. Introduction

Early identification refers to different methods, procedures, and practices used to determine the presence of an identified disability or delay or a condition that places a child at risk for a developmental delay or poor outcome. Early identification includes, but is not limited to, both traditional and non-traditional screening, assessment, evaluation, and teaming models and practices used to establish the presence of a disability, developmental delay, or risk condition. Early identification refers to a broad range of methods, procedures, and practices used to determine or identified disability that results in a developmental delay or places a child at risk for a developmental delay or poor outcome. Practices include: (1) developmental and behavioural screenings conducted by health care professionals that are used to identify developmental or behavioural concerns or the need for further evaluations (Halfon et al., 2004), (2) parent appraisals of their children's behaviour and development resulting in further evaluations or in seeking help regarding parent concerns (Diamond, 1993; Glascoe, 1998), (3) the use of risk assessment indicators for identifying children who have a high probability of subsequent developmental delays, (4) teaming models and practices used to gather information needed to make decisions about developmental delays, and (5) the assessment tools and instruments used by early intervention and preschool special education practitioners to screen for or establish the presence of developmental delays.

Many instruments that ask caregivers about their concerns regarding their child's development or whether their child has achieved certain developmental milestones have been shown to have appropriate psychometric properties as screening tools and are now recommended in many high-income countries (Council on Children with Disabilities, 2006; Meisels & Atkins-Burnett, 2000).

Instruments that help clinicians to detect developmental difficulties are core components of developmental monitoring (Blair & Hall, 2006). In low and middle income (LAMI) countries, the lack of appropriate instruments may be a major barrier to monitoring child development (Engle et al., 2007), in LAMI countries may not have sufficient knowledge about early childhood development and that, therefore, the need for instruments in the monitoring process is even greater than in high-income countries.

The family's active partnership during the monitoring process and a continuous relationship between the clinician and the family are key to the early detection of developmental difficulties.

In most LAMI countries, caregivers were generally the first to recognize that a young child had developmental difficulties, followed by pediatricians and other health care providers. In most countries, most health providers were not using any instruments routinely to determine the presence of developmental difficulties in young children.

In developed countries, the early detection of developmental difficulties is possible because developmental monitoring is an integral part of health care encounters (McKay, 2006). Identification process, early detection of developmental difficulties in low and middle income countries (LAMI) is a different, the health care system does not have a model for the promotion and monitoring of the development of children, prevention and early identification of risk factors associated with developmental difficulties, and early interventions. Health care providers may not have appropriate knowledge and expertise, and service delivery systems may be inadequate. However, by building local capacity, a systematic approach, specific to the needs of LAMI countries, can be developed (WHO, 2012 p. 2).

In the Republic of Serbia, timely identification of children with developmental disabilities and early identification of primary and comorbid developmental problems are characterized by the lack of adequate instruments in different segments of assessment. In some cases, developmental disabilities and specific developmental difficulties remain unnoticed or are wrongly interpreted by parents, preschool teachers, or professional associates, which can lead to significant developmental complications, especially from the moment a child starts elementary school. By applying reliable and valid instruments and techniques, preschool period is the right time to identify these children and provide them with adequate support which is adapted to their developmental abilities and level, and which can provide appropriate cognitive interaction in the preschool group (Ilic, 2015).

Half of all children with disabilities are not identified before school entry. This precludes their participation in early intervention programs that have known benefit. Although screening tests can greatly improve detection rates, these have not been popular in primary care due to test length and time constraints, and difficulty managing children's behaviour. An alternative is to rely on information from parents (Glascoe, 1999, p. 35).

By reviewing available literature, Ozonoff et al. (2009) discovered to what extent information obtained from parents correlated with the results of developmental tests and/or expert assessment. These correlations ranged from moderately high when related to children's vocabulary and congruent expressive language scores, to very high when related to parents' assessment of children's developmental level.

By analysing parents' concerns, Dworkin and Levine (1979) concluded that concerns related to behaviour, most commonly expressed by parents, pointed to delays in other developmental areas, and not directly to behavioural problem. Glascoe (1998) also confirmed the same assumption by showing the results of her studies conducted in five social work centres in children with an IQ under 79. Parents of these children had concerns, only not related to academic skills, slow learning, etc., but to behaviour or speech and language development (it was possible to identify 83% of children with general developmental delay on the basis of concerns related to behaviour or expressive

language). The same author emphasized that these results could be explained by the fact that parents did not look for the cause of bad behaviour (e.g. that a child did not have cognitive capacity to process the given assignment, or had a hearing disability and was unable to understand what was said).

Often, different types of problems a child has are hidden behind one parental concern, but they are not visible from the parents' perspective. If we analyse the relation and interaction between a child and a parent, it is evident that parent's concern is caused by what the child manifests in family and social environment.

The inclusion of parents in the assessment process recognizes the unique knowledge parents have of their child's development, as well as reinforcing their central role in implementing any recommended developmental intervention (Skellern, Rogers, & O'Callaghan, 2001, p. 125).

2. Method

The aim of this research was to determine the level and type of parents' concerns about child development and behaviour by assessing and analysing the concerns according to the parameters of Parents' Evaluation of Developmental Status test (PEDS; Glascoe, 2010).

The sample consisted of 289 parents of children from two preschool institutions in Belgrade. During the research, 954 questionnaires were distributed to parents, and 289 were completed and returned with parents' consent. Thus, we can conclude that 30% of parents agreed to participate in the research providing complete information, which required a planned empirical procedure.

With regard to participation in children assessment, the distribution of parents was as follows: mothers participated the most (234, which was 81%), 42 questionnaires were completed by fathers (14.5%), and the fewest number of questionnaires were completed by both parents (4.5%). In the study which standardized PEDS, the distribution of participation was statistically significantly different ($\chi^2_{(2)} = 12.69$, $p = .002$) compared to our research: mothers provided information about children in 89.2% of the cases, fathers in 8.2%, and other people who took care of the child in 2.6% (the research was conducted on 771 children, aged between 0 to 7 years and 11 months (Glascoe, Altemeier, & MacLean, 1989)). The difference can be explained by demographic and social diversity of the populations.

Through the distribution of participants with regard to age, we can also observe the distribution of interest, i.e. possible concerns of parents, which coincided with previous studies and the confirmed facts that concerns and interest increase between the ages of two and four, where parents express a higher level of concerns, especially related to speech development and behaviour. At the ages of five and six concerns slightly decrease, only to significantly increase again between the ages of six and seven. Parents' concerns are the smallest from a child's birth to the age of two (Yeargin-Allosopp, Murphy, Oakley, & Sikes, 1992). Our distribution of the results confirmed this, since all questionnaires were distributed evenly to all age groups of preschool institutions in which the research was conducted. The distribution of the sample with regard to gender was equal: 53.8% of boys and 46.2% of girls ($\chi^2_{(1)} = 1.68$, $p = .20$) (Table 1).

2.1. Material

Parents' Evaluation of Developmental Status (PEDS) (Glascoe, 2010) includes a comprehensive assessment of parents' concerns in the following developmental domains: fine motor skills, gross motor

Table 1. Distribution of participants with regard to age.

Age	N	%
3 years	9	2.8
4 years	75	26.0
5 years	71	24.7
6 years	123	42.7
7 years	11	3.8
Total	289	100

Table 2. Distribution of parents' concerns with regard to developmental domains on the basis of PEDS test.

General concerns	Behaviour	Language	Social emotional	Fine motor	Gross motor
No	69.2	73.7	78.9	96.9	97.6
Little	1.4	2.1	0.3	1.0	0.7
Yes	29.4	24.2	20.8	2.1	1.7

skills, socio-emotional development, self-help, expressive language, receptive language, and behaviour. The accuracy of PEDS implies that the sensitivity degree is such that it identifies 74–80% of children with developmental problems between 0 and 8 years of age, and that specificity ranges between 70–80% depending on age (Glascoe, 1998) (Table 2).

Test results make it possible for children to be referred for different programmes according to the following criteria: The presence of two or more predictive concerns requires Path A – these children should urgently be referred for early intervention programmes and developmental-diagnostic tests. The presence of one significant concern means that children are at moderate risk of serious difficulties, and also disorders or disabilities, and that it is necessary to refer them for further diagnostics and stimulating early intervention programmes (Path B). Path C implies the presence of one or more non-predictive concerns (a small percentage of these children have developmental difficulties, and a somewhat greater percentage express emotional difficulties and behavioural problems). These children should be monitored and assessed again in three to six months. Path E implies that there are no concerns and that parents do not have problems in communication. These children are monitored through regular assessments (Glascoe, 1998).

3. Results and discussion

3.1. Parents' general concerns and concerns in specific developmental domains

In the existing procedure of preschool institutions in the Republic of Serbia, there is no procedure for assessing parents' concerns. In a situation when the instrument is used, parents are willing to determine their concern within specific developmental domains.

When such a level of parents' concerns is observed within developmental domains with regard to children's age, we notice that parents of preschool children were concerned the most. We already determined that the largest number of these children's parents agreed to participate in this research (Table 3).

We assessed the relation between general concerns expressed by parents at the beginning of research (general concerns) and expressed concerns with regard to all developmental domains individually, by means of PEDS test (Tables 4–8).

There was a significantly high correlation between parents' general concerns and expressed concerns with regard to behaviour ($\chi^2 = 17.86$, $df = 2$, $p < .001$). It equals .25 in Kendall's tau coefficient (Table 4).

The correlation between parents' general concerns and expressed concerns with regard to getting along with others had the same level of significance ($\chi^2 = 22.57$, $df = 2$, $p < .000$). It equals .27 in Kendall's tau coefficient (Table 5).

Table 3. Concerns about behaviour through children's age.

		Concerns			Total
		Behaviour	language	Social emotional	
Age	4–5	23	19	16	77
	5–6	21	16	15	71
	6–7	38	32	27	134
Total		196	67	58	282

Table 4. General concerns in relation with concerns about behaviour.

		No	Little	Yes	total
General concerns	No	155	2	45	202
	Yes	45	2	40	87
Total		200	4	85	289

Table 5. General concerns in relation with concerns about getting along with others (social emotional).

		Concerns about getting along with others (social emotional)			Total
		No	Little	Yes	
General Concerns	No	174	1	27	202
	Yes	54	0	33	87
Total		228	1	60	289

Table 6. General concerns in relation with concerns about using hands and fingers.

		Concerns about using hands and fingers			Total
		No	Little	Yes	
General concerns	No	199	1	2	202
	Yes	81	2	4	87
Total		280	3	6	289

Table 7. General concerns in relation with concerns about talking (expressive language).

		Concerns about talking (expressive language)			Total
		No	Little	Yes	
General concerns	No	157	3	42	202
	Yes	56	3	28	87
Total		213	6	70	289

Table 8. General concerns in relation with concerns about moving arms and legs (gross motor).

		Concerns about moving arms and legs (gross motor)			Total
		No	Little	Yes	
General concerns	No	198	1	3	202
	Yes	84	1	2	87
Total		282	2	5	289

There was a marginally significant correlation between parents' general concerns and expressed concerns with regard to fine motor skills ($\chi^2 = 5.90$, $df = 2$, $p = .052$). It equals .14 in Kendall's tau coefficient (Table 6).

A marginally significant correlation was also determined between parents' general concerns and expressed concerns with regard to expressive language ($\chi^2 = 5.858$, $df = 2$, $p = .053$). It equals .135 in Kendall's tau coefficient (Table 7).

There was no significant correlation between parents' general concerns and expressed concerns with regard to gross motor skills ($\chi^2 = 0.62$, $df = 2$, $p = .73$) (Table 8).

Across several studies, about 40% of parents reported having concerns but not sharing them with their child's clinician. Finally, when parents do respond to informal questions about concerns, they are not always fully prepared to discuss them. Parents, unlike professionals, may not think about development as a series of domains (eg, expressive and receptive language, fine and gross motor, personal-social). (Glascoe, 2000, p. 276)

Table 9. Children referral according to the determined PEDS paths, on the basis of the assessment of parents' concerns.

	Number	Percentage
path E	129	44.6
path A	5	1.7
path B	80	27.7
path C	75	26.0
Total	289	100

Notes: path E, no significant concerns, path A, more predictive concerns; path B, one predictive concern; path C, one or more non-predictive concerns.

Developmentally inappropriate concerns may afford an opportunity to learn about parents' understanding of child development and adjust this understanding. Improving parent knowledge of child development could not only improve the parent-child relationship but also prevent misdiagnoses (Williams et al., 2002 in Cox, Huntington, Saada, Epee-Bounoya, & Shonwald, 2010).

3.2. Children referral on the basis of the assessment of parents' concerns

Research results confirmed that 44.6% of children from the sample did not require a more detailed assessment and supervision, and that 55.4% of children were referred for further procedures: monitoring, supervision, diagnostics, support. Total of 27.7% of children from our sample should follow path B, with one predictive concern, i.e. necessary additional assessment. Twenty-six per cent of children from the sample should be referred for path C, they should be monitored, their progress checked, and their parents should be educated. In 1.7% of children from the sample parents expressed more predictive concerns, and they should be referred for path A, which means special education services (Table 9).

By interpreting the results of her research conducted with the aim to explore whether children who pass screening tests differ in important ways from those who do not and to determine whether children overreferred for testing benefit from the scrutiny of diagnostic testing and treatment planning, Glascoe (2001) concludes that although such testing will not indicate a need for special education placement, it can be useful in identifying children's needs for other programmes known to improve language, cognitive, and academic skills.

4. Conclusions

This was a first attempt in the Republic of Serbia to include parents in monitoring and assessing their child's development, and for parents to express their observations and concerns about certain aspects of development, by means of a structured test.

Concerns were expressed by 30.1% of parents. A high statistical significance was determined between parents' general concerns and expressed concerns with regard to behaviour, getting along with others, and speech. The research identified 56.4% of children who needed to be monitored further: 27.7% needed to be referred for further diagnostics, and 1.7% needed to be included in treatment or special education services.

This research provides enough arguments for introducing this type of parental screening into health care and preschool practice.

Disclosure statement

No potential conflict of interest was reported by the authors.

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