Neurodevelopmental Pediatrics in Portugal: Hospital Patient Volume, Resources and Needs – Changes After Ten Years

Pediatria do Neurodesenvolvimento em Portugal: Movimento Hospitalar Assistencial, Recursos e Necessidades – Evolução em Dez Anos

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ABSTRACT

Introduction: Neurodevelopmental disorders are, in modern societies, the most common chronic pediatric conditions. Many remain in adulthood. Organizing the national health care network to respond efficiently and effectively requires grounded knowledge of care needs. The Neurodevelopmental Pediatrics Society of the Portuguese Society of Pediatrics in order to know the current hospital care reality of Neurodevelopmental Pediatrics, carried out a national survey in 2007, repeating it ten years later.

Material e Methods: In the 2016-2017 biennium, a survey of 45 hospital units was conducted on the patient volume of Neurodevelopmental clinics, the allocation of human resources, and the needs for professional reinforcement.

Results: We obtained a 100% response rate. The total number of Neurodevelopmental Pediatrics consultations rose from 38 238 (2007) to 99 815 (2017). The number of professionals has also increased: pediatricians increased from 82 to 156. A median of 101 children were awaiting first consultation, compared with 185 in 2007.

Discussion: In a decade, the patient volume almost tripled. The reinforcement of professionals, even though it was beneficial, did not increase accordingly; even so, the number of children on the waiting list for their first appointment has almost halved, reflecting the commitment of professionals.

Conclusion: It is noteworthy that the overall improvement of the national response in the area of Neurodevelopmental Pediatrics is remarkable. However, the requested reinforcement of human resources from a multidisciplinary perspective should not be neglected in view of the continuous improvement in care delivery in an area of great chronicity and complexity.

Keywords: Health Resources; Hospitals; Neurodevelopmental Disorders; Pediatrics; Portugal

RESUMO

Introdução: As perturbações do neurodesenvolvimento são, nas sociedades modernas, as patologias crónicas mais frequentes da idade pediátrica. Muitas permanecem na vida adulta. A organização da rede de cuidados de saúde nacional carece de conhecimento fundamentado das necessidades assistenciais para lhes responder de um modo eficaz, eficiente e efetivo. Com o objetivo de conhecer a realidade assistencial hospitalar atual da Pediatria do Neurodesenvolvimento, a Sociedade de Pediatria do Neurodesenvolvimento da Sociedade Portuguesa de Pediatria procedeu a um levantamento nacional em 2007, repetindo-o dez anos depois.

Material e Métodos: No biénio 2016-2017 procedeu-se a um inquérito dirigido ao universo de 45 unidades hospitalares abrangendo o movimento assistencial das consultas de Pediatria do Neurodesenvolvimento, a alocação de recursos humanos, e as necessidades de reforço de profissionais.

Resultados: Obteve-se 100% de respostas. O número total de consultas de Pediatria do Neurodesenvolvimento subiu de 38 238 (2007) para 99 815 (2017). O número de profissionais também aumentou: os pediatras passaram de 82 a 156. Uma mediana de 101 crianças aguardavam primeira consulta, contra 185 em 2007.

Discussão: Numa década, o movimento assistencial quase triplicou. O reforço de profissionais, apesar de positivo, não teve o mesmo incremento; ainda assim, o número de crianças em lista de espera para primeira consulta reduziu-se quase para metade, o que reflete o comprometimento dos profissionais.

Conclusão: É de salientar a melhoria global da resposta nacional na área da Pediatria do Neurodesenvolvimento. Contudo, o reforço dos recursos humanos numa perspectiva pluridisciplinar não deve ser negligenciado, tendo em vista a melhoria contínua da prestação de cuidados numa área de grande cronicidade e complexidade.

Palavras-chave: Hospitais; Pediatria; Perturbações do Neurodesenvolvimento; Portugal; Recursos em Saúde

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INTRODUCTION

Due to high and increasing frequency, chronicity, complexity and specificity, neurodevelopmental disorders need a systematic care provision adapted to current requirements.[1-3]

In Portugal, this has been followed gradually. Ten years ago, with the support and coordination of the Society for Neurodevelopment Paediatrics of the Portuguese Paediatric Society (SPND-SPP), the first national survey on hospital care, number of staff assigned to care, as well as existing issues and perceived needs was published in 2007.[4]

The survey results represented 85.7% of the hospitals and included the following: developmental/neurodevelopmental consultations represented 11% of all hospital paediatric consultations; 82 paediatricians were dedicated to this subspecialty of paediatrics (one third working full-time); other professionals (psychologists, speech therapists, occupational therapists, physiotherapists, psychomotricity rehabilitation technicians, teachers and social service technicians) were included in these multidisciplinary teams, even though in much smaller numbers and mostly working part-time. These resources were considered as suboptimal considering a six-month median waiting time for assessment, as well as the high number of patients (median of 185 patients) waiting for assessment.[4]

Since then, many changes have been found in this area, especially regarding the frequency and diagnostic and social conceptualisation of paediatric diseases, as well as a high demand for highly differentiated hospital care.

By mid-twentieth, acute diseases were dominant and the biomedical model prevailed. The most frequent chronic diseases included 'physical' diseases, such as asthma and other respiratory diseases. For reasons that are still not fully understood, there has been an increase over the past decades in clinical situations corresponding to behavioural and emotional changes, learning disabilities and of social adaptability. The biopsychosocial perspective of disability or adaptive dysfunction as an expression of poorer health in children has been developed, leading to the development by the World Health Organisation (WHO) of the International Classification of Functioning and Disability in Health.[5]

The USA prevalence of chronic conditions related to 'physical' illness decreased by 11.8% between 2001 and 2011, while those associated with neurodevelopmental and mental health problems increased by 20.9%.[6] There is also the evidence that the limitation of children's adaptive capacity to their natural environment by chronic conditions of this scope quadrupled from 1960 to 2009.[5] In this domain, there is an increase in the diagnosis of language and learning problems, intellectual developmental disorder, autism spectrum disorder and attention deficit hyperactivity disorder, among other behavioural and emotional problems.[6]

This could not only be explained by the advances in health technologies and the improvement in the quality of life and healthcare provided to the population, allowing for the survival of patients with previously deadly diseases. Other variables are also involved.[7]

Current health and social models, geared towards close monitoring of normality and promoting early screening for diseases, may eventually promote the diagnosis of clinical conditions which in the past would have been missed (over-utilisation).[8] This period was called by some authors as 'too much medicine'.[9]

These issues may be even more relevant as regards neurodevelopmental pathologies, in the sense that there are no biomarkers that could help to reach or deny a diagnosis, which is mainly based on clinical assessment and details provided by parents and educators. In addition, there is a wide variability in normal behaviour and neurodevelopmental stages and this is not always known and valued by parents and professionals, raising concerns that are sometimes misleading. On the other hand, the current social focus on standardised learning imposes an increasing risk of school failure on children with cognitive and behavioural characteristics at the lower limits of normality and subsequently the need for care of neurodevelopmental disorders. Among others, these factors may have contributed to explain the current increase in the diagnosis of neurodevelopmental, emotional and behavioural disorders, mainly in children from well-off families, in which a higher increase has been found.[6]

With this epidemiological reality and aimed at standardising diagnostic criteria and defining specific and discrete clinical entities that frequently coexist, the chapter on neurodevelopmental disorders was for the first time introduced by the American Psychiatric Association in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM).[10] This approach to the dysfunction of learning and adaptive capacities in the progression of psychomotor development has led to the concept of neurological organicity. It has an early onset and remains throughout life, although with a very different spectrum of clinical manifestations.[2] These disorders are currently considered physical or organic, just like other disorders affecting organs other than the nervous system.[11]

The Research Domain Criteria (RDoC) were recently developed by the National Institute of Mental Health in the

United States of America, in recognition of the urgency of the aetiological research and the understanding of the underlying abnormal neuronal circuits. This research project advocates a scientific study structure that links the dimensional aspect to the different domains of biological research, by diagnosis-related groups. This model has the advantage of not requiring a classification into specific clinical conditions, which may facilitate the analysis and reduce scientific biases arising from misdiagnosis in discrete or categorical clinical entities.[12]

In this highly specific framework, healthcare services, particularly in the area of paediatrics, have to prepare to meet the needs of children, families, teams of educational and healthcare professionals and neuroscience researchers. The need for analysis, preparation of professionals and definition of the best health response model is discussed and addressed worldwide and is still in need of development and improvement.[1-3,13,14]

In fact, the response of healthcare systems at this level is considered suboptimal, even if only the clinical aspect is considered, given the structural deficit of medical preparation in this area and short staffing.

Although the paradigm of the classic vertical health model, centred on the doctor-patient relationship, has evolved to the horizontal concept, in which patients and their families are involved in decision making regarding their health, the area of neurodevelopment still requires contact with intervention teams in the community. Therefore, a multidisciplinary approach and detailed written information are very relevant and should also be taken into consideration. High dissatisfaction among professionals could arise should these issues were not addressed.[14]

A differentiation in the area of neurodevelopmental disorders has been developed by paediatricians, in addition to the promotion of models of multi-professional networking, involving other healthcare professionals, including psychologists and other areas of assessment and therapeutic intervention, as well as the patients' families.[2,3,11]

This study was mainly aimed at the assessment of the reality in neurodevelopmental paediatrics nationwide, in order to obtain comprehensive data that may contribute to the improvement of this network of care in Portugal. Additionally, the evolution of these indicators was compared with those obtained in 2007.[4,15]

MATERIAL AND METHODS

An online questionnaire (https://docs.google.com/forms/d/e/1FAIpQLSdzM9sKZziVdT_EAI3KgY_uPvHvpEkQYi4c-NUJLMYxMs5r2Rg/viewform) was developed in 2018 and 2019 by the Board of Directors of the SPND-SPP and was sent to all the hospitals providing specific outpatient care in the area of developmental paediatrics/neurodevelopmental disorders [('neurodevelopmental paediatrics' (NDP) will be used henceforth].

The identification of public hospital centres, hospitals and local health units included in the National Health Service (NHS) and providing outpatient NDP care was based on the 2018 data of the institutional site (https://www.sns.gov.pt/institucional/entidades-de-saude/). An email was sent to 43 public hospitals in mainland Portugal, Madeira and the Azores, as well as to two private hospitals traditionally involved in the area of NDP, involving 45 healthcare institutions [listed in Appendix 1 (see Appendix 1: https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/13316/Apendice_01.pdf)].

Based on the 2016-2017 period, the following questions regarding (i) healthcare utilisation in NDP; (ii) staffing and weekly working hours; (iii) training capacity; (iv) waiting time for first assessment and also (v) estimated short-term staffing needs:

i) Number of NDP consultations (first and total) where specific consultations in this area should be included, such as those regarding ADHD (attention deficit hyperactivity disorder) and autism, among others;

ii) Number of paediatric consultations (including other differentiated areas, such as nephrology or endocrinology, where available);

iii) Specific outpatient care included in NDP outpatient clinic and which ones;

iv) Paediatric registrars working within the NDP outpatient clinic and in which context;

v) Number of paediatricians working full-time at the NDP outpatient clinic (full-time activity apart from emergency) or part-time;

vi) Psychologists, speech and occupational therapists, physiotherapists, psychomotricity rehabilitation technicians, teachers and social service technicians in these multidisciplinary teams;

vii) Weekly working time dedicated by paediatricians and other healthcare professionals to NDP;

viii) Number of paediatricians trained within a NDP Special Course of Study or equivalent;

ix) Waiting list for initial NDP assessment, as well as waiting time at 31 Dec 2017;

x) Short-term staffing needs.

Responses were based on hospital statistical records.

No submission of the study to the Ethics Committee for Health was required, since it was based on the analysis

Table 1 – Neurodevelopmental paediatric consultations in 2016 and 2017, per regions

Region		Total	Mean	SD	Median	Range	
Lisbon and Tagus Valley	2016	33,012	2,201	1,578	2,153	315	6,919
	2017	33,271	2,218	1,568	2,001	339	6,986
Northern	2016	30,415	2,172	1,161	1,973	200	4,665
	2017	30,727	2,195	1,175	2,130	225	4,530
Central	2016	26,158	3,270	2,615	2,686	813	8,970
	2017	26,209	3,276	2,531	2,727	842	8,793
Algarve	2016	3,789	1,895	1,298	1,895	977	2,812
	2017	3,704	1,852	1,266	1,852	957	2,747
Madeira	2016	2,007	2,007	.	2,007	2,007	2,007
	2017	2,286	2,286	.	2,286	2,286	2,286
Alentejo	2016	1,915	638	305	715	302	898
	2017	1,829	610	361	674	221	934
Azores	2016	1,223	612	670	612	138	1,085
	2017	1,789	895	271	895	703	1,086

SD: standard deviation

of numerical indicators from official sources and an online open-ended survey and due to the fact that no personal clinical data were involved.

RESULTS

A 100% survey response rate was obtained from 45 hospital institutions (43 public SNS hospitals and two (4%) private hospitals), confirming the presence of a differentiated, structured and regular NDP outpatient care.

According to data obtained with this survey, 98,519 (SNS – 93,529; 94.9%) and 99,815 (SNS – 94,980; 95.2%) NDP outpatient consultations were completed in 2016 and 2017, respectively. These numbers ranged within the different regions from 138/221 to 8,970/8,793, with means ± one standard deviation ranging 2,189/2,218 ± 1,662/1,630 and medians 1,971/2,001 (Table 1). NDP outpatient consultation data by regions are shown in Fig. 1.

In Portugal, the rate of first *vs.* total NDP consultations ranged in 2016 from 14.6% (Alentejo) to 28.5% (Madeira) while in 2017 it ranged from 12.8% (Madeira) to 19.1% (Lisbon and Tagus Valley) (Table 2).

Total paediatric consultations by regions, as well as the rate between NDP consultations *vs.* paediatric consultations was shown in Table 3. A 14.4% rate of NDP consultations

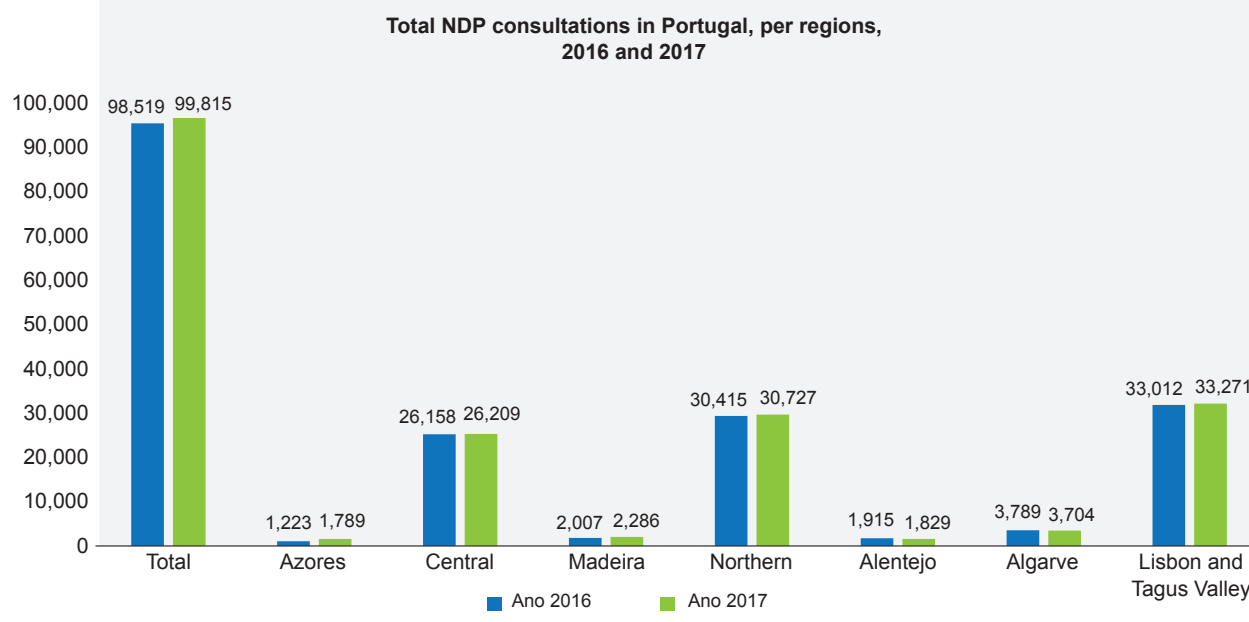

Figure 1 – Distribution of total NDP consultations in Portugal, per regions, 2016 and 2017

Table 2 – Rate between first NDP assessments and total NDP assessments in 2016 and 2017, per regions

Region	NPD consultations 2016			NPD consultations 2017		
	First	Total	Rate between First / Total	First	Total	Rate between First / Total
Lisbon and Tagus Valley	5,998	33,012	18.20%	6,357	33,271	19.10%
Northern	5,445	30,415	17.90%	5,158	30,727	16.80%
Central	4,292	26,158	16.40%	4,208	26,209	16.10%
Algarve	750	3,789	19.80%	686	3,704	18.50%
Madeira	571	2,007	28.50%	292	2,286	12.80%
Alentejo	280	1,915	14.60%	279	1,829	15.30%
Azores	259	1,223	21.20%	329	1,789	18.40%
Total	17,595	98,519	17.86%	17,309	99,815	17.34%

NDP: Neurodevelopmental paediatrics

compared to total paediatric consultations has been found, ranging between 8.5% in the Azores and 24.5% in Central region in 2016 and between 12.3% in the Lisbon and Tagus Valley region and 24.2% in Central region in 2017.

All pathologies in this area were approached in 31 hospitals within general NDP outpatient clinics, while specific outpatient care existed at the remaining 14 (31%). Among these, specific ADHD consultations existed in eight hospitals, biological risk in eight, autism in seven, trisomy 21 in four, learning difficulties in four, cerebral palsy in three, neonatology in one and neural tube defects in one.

As regards the availability of training of paediatric registrars, this optional internship was made available in nine hospitals. Paediatric registrars were routinely trained in NDP consultations in 27 (60%) hospitals, where internship time was available (although not as a compulsory part of any specific paediatric training programme), while this option was not available in nine.

A total of 56 paediatricians worked full-time in NDP care and 100 part-time, with 2,279 hours assigned per week to NDP care. Twenty-nine of these paediatricians attended the NDP Special Course of Study.

As regards the integration of other health professionals, their number and the amount of hours dedicated per week to NDP are shown in brackets: psychologists (82; 1,447), speech therapists (64; 1,325), physiotherapists (40; 522), occupational therapists (28; 648), psychomotricity rehabilitation technicians (16; 399), teachers (30; 684) and social service technicians (32; 401) (Tables 4 and 5).

At 31 Dec 2017, an average of 101 patients were waiting for an initial NDP assessment, ranging from 4 to 387. A three-month waiting time has been found, ranging from 1 to 10 (Table 6).

Short-term staffing needs of NDP paediatricians was described by 14 hospitals, which together would recruit 15 professionals (eight in Southern, four in Northern and three in Central region). In addition, in descending order, psychologists (25), speech therapists (14), occupational therapists (10), psychomotricity rehabilitation technicians (9), physiotherapists (6) and teachers (1) were also requested.

DISCUSSION

This global framework of an increasing prevalence of neurodevelopmental disorders and subsequent demand for adequate healthcare has been gradually incorporated in Portugal. There has been an increase in the number of outpatient NDP consultations in ten years (2007 to 2017) from 38,238[4] to 99,815, corresponding to almost a threefold

Table 3 – NDP *vs.* Paediatric consultations in Portugal (2016; 2017)

Region	2016 Paed cons	2016 NDP cons	2016 NDP/ Paed (%)	2017 Paed cons	2017 NDP cons	2017 NDP/ Paed (%)
Lisbon and Tagus Valley	265,775	33,012	12.40%	270,364	33,271	12.30%
Northern	258,529	30,415	11.80%	259,131	30,727	11.90%
Central	106,949	26 158	24.50%	108,480	26,209	24.20%
Algarve	15,871	3,789	23.90%	15,503	3,704	23.90%
Madeira	13,837	2,007	14.50%	12,337	2,286	18.50%
Alentejo	16,560	1,915	11.60%	15,523	1,829	11.80%
Azores	14,351	1,223	8.50%	13,751	1,789	13.00%
Total	691,872	98,519	14.24%	695,089	99,815	14.36%

Paed: Paediatric; NDP: Neurodevelopmental paediatric

Table 4 – Staff in NDP teams in 2017, per regions, compared to the number of elements and weekly hours assigned to NDP care

Region	Paed-FT	Paed-PT	Paed-WH	Psy	Psy-WH	ST	ST-WH	Phy	Phy-WH
Lisbon and Tagus Valley	20	33	898	32	710	22	488	9	115
Central	16	18	479	17	300	15	394	4	70
Northern	15	33	631	22	204	13	126	18	119
Algarve	4	3	138	2	35	3	55	2	70
Alentejo	1	7	76	3	42	3	79	1	35
Azores	0	3	17	4	86	6	113	5	78
Madeira	0	3	40	2	70	2	70	1	35
Total	56	100	2,279	82	1,447	64	1,325	40	522

Phy: physioterapists. WH: weekly working hours; Paed: paediatricians; Psy: psychologists; FT: full-time; ST: speech therapists; PT: part-time

Table 5 – 2017 staffing of NDP teams, per regions, compared to the number of elements and weekly hours assigned to NDP care

Region	OT	OT-WH	PsyT	PsyT-WH	Teachers	Teachers-WH	SST	SST-WH
Lisboa e Vale do Tejo	6	183	9	204	8	180	6	43
Norte	10	92	2	35	4	14	14	132
Centro	5	175	2	55	15	441	6	101
Algarve	3	105	0	0	1	4	1	12
Alentejo	0	0	1	35	0	0	2	35
Açores	3	58	2	70	1	10	2	43
Madeira	1	35	0	0	1	35	1	35
Total	28	648	16	399	30	684	32	401

WH: weekly working hours; OT: occupational therapists; FT: full-time; PT: part-time; PsyT: psychomotricity rehabilitation technicians; SST: social service technicians

increase (Table 7).

This could be put into context with the overall increase in hospital medical consultations that has occurred, particularly in paediatrics. However, the analysis of this progression, based on official data,[16,17] has shown a 7% increase in the number of paediatric consultations, which is well below what was found regarding NDP, as shown in our study, reinforcing its real absolute and relative increase.

An 11% NDP *vs.* paediatrics consultation rate has been found in the previous study carried out in 2007, with the highest rate found in the Central region (close to 17%).[4] A 14% rate has currently been found, still higher in the Central region, with NDP consultations now reaching almost a quarter of the paediatric consultations (Table 3). It is worth mentioning that this high rate, compared to the remaining regions, may be explained by the fact that the Central region is where the lowest number of NDP consultations in private hospitals were completed, increasing the relative response of the public sector in this area, when compared to other regions.

In 2017, 56 consultants worked full-time in NDP care (100 part-time). The available data allow us to conclude that the number of NDP paediatricians has almost doubled (from 82 in 2007 to 156 in 2017). In 2007, a 5.5% rate of NDP paediatricians (82) *vs.* total paediatricians (1.479) has been found[18] and rose to 7.5% in 2017 (156/2085) - Table 7.

A total of 2,279 weekly hours have been assigned to NDP in 2017. Considering 45 weeks of work per year of the hospital clinical staff work (excluding holidays and training leave without loss of pay, among others), a total of 102,555 hours have been allocated per year. Considering a total number of 99,815 NDP consultations in Portugal that year, one hour of medical time was on average dedicated to each consultation. A 60-minute standard NDP consultation time (initial assessment) and 45-minute (routine appoint-

Table 6 – Outpatient waiting list for initial NDP assessment in Portugal at 31 Dec 2017

		Waiting list (31/12/2017)	**Waiting time** (31/12/2017), months
Mean		101	3
Median		73	3
Standard deviation		95	2
Range - Minimum		4	1
Range - Maximum		387	10
Percentile	25	40	1.6
	50	73	3.0
	75	112	3.3

Table 7 – Comparative data – 2007/2017

Study years	Total NDP consultations	No. of NDP paediatricians / total paediatricians (%)	Median of patients in waiting list for NDP assessment at 31 Dec (mediana de espera em meses)
2007	38,238	82/1,479 (5.5%)	185 (6)
2017	99,815	156/2,085 (7.5%)	101 (3)

NDP: neurodevelopmental paediatric

ment) are recommended by the recently published regulations of the Portuguese Medical Association (*Ordem dos Médicos*) and the Paediatrics Medical College.[19] Based on these consultation times, considering the number of NDP consultations in this survey (99,815) and the relative weight of first *vs.* routine assessments (17,309/82,506), 79,188 hours would be spent per year. In this projection, less than a quarter of this time (23,367/102,555 hours; 22.8%) would remain available for meetings, external contacts and report preparation, which seem clearly suboptimal.

Several studies showed dissatisfaction and demotivation of paediatricians dedicated to this area.[14] One of the reasons regarded suboptimal time for post-consultation tasks, which is also found in Portugal, in addition to the lack of specific training in the area.[20] In a recent study by the American Academy of Paediatrics, suboptimal training in the management of neurodevelopmental disorders has been described by 65% of the participants.[20]

In Portugal, these issues have been taken care of, although there is still a need for improvement.

The medical staff allocated to NDP care should clearly be increased, together with a specific training effort in the area of neurodevelopmental disorders, either within the paediatric internship or at a later stage.

In fact, our study has shown that one fifth of the public hospitals (9/43) are qualified to provide optional training in NDP, while paediatric registrars usually attend NDP consultations in 27 hospitals (60%) (although training in NDP is optional in the current paediatric training programme, becoming compulsory in the current update).

A two-year differentiated training in NDP [Special Course of Study (SCS)] for paediatric consultants was developed in Portugal in 2009[15] and 29 of these 156 paediatricians (18.6%) attended this course.

Multidisciplinary work and the connection of these professionals with the patient's community represent specific burdens in terms of human resources and direct (consultation) and indirect (post-consultation) time, as already described.

Staffing shortage of non-medical professionals was also relevant in the 2007 survey, with a high number of requests for reinforcement. The 2007 staffing and staffing request figures are shown in Table 8 and a positive increase can be found in all areas, especially in paediatrics (a 90% increase), psychology (26%), speech therapy (52%) and physiotherapy (21%). A 3% reduction was found in the number of occupational therapists who eventually gave way to psychomotricity rehabilitation technicians, unassigned in 2007, while an 11% increase in the number of teachers has been found, which fell short of the programmed number, as did the number of social service technicians, which was reduced by 5%.

When considering the short-term requests (Table 8), there is still a need for staffing reinforcement in paediatrics, psychology and speech therapy, followed by occupational therapy, psychomotricity and physiotherapy. These professionals include the central core of multidisciplinary hospital teams in Portugal, in line with what is recommended in

Table 8 – Current staffing and staffing request for NDP teams, 2007 and 2017

Staffing	Current 2007	Request 2007	Current 2017	2007/2017 increase (%)	Short-term request
Paediatrics	82	34	156	+90%	15
Psychology	65	21	82	+26%	25
Speech therapy	42	20	64	+52%	14
Physiotherapy	33	8	40	+21%	6
Occupational therapy	29	14	28	-3%	10
Psychomotricity rehabilitation	-	-	16		9
Teaching	27	20	30	+11%	1
Social service	38	6	36	-5%	-

Note: Full or part-time work are not discriminated due to confidence data limitations

other countries.[2,5-7]

Despite a significant increase in the number of professionals dedicated to NDP in the public sector (only two private hospitals were included) and the fact that almost a three-fold increase in the number of consultations has been found, the response to the needs in the paediatric population is still not adequately covered. In December 2017, a 101 median number of patients in the waiting list has been found (ranging from 4 to 387), with between one and ten months (median of three months) of waiting time - Table 6. While these data are not optimal, they are clearly better than those found ten years ago, when a median number of 185 patients were found in waiting list, with a median six-month waiting time (Table 7).[4]

The patient's overview has changed over the recent decades, with neurodevelopmental disorders as the current leading chronic diseases. While patients affected by infectious diseases and even with malnutrition were the rule in the past, patients with neurodevelopmental disorders are mostly found today.[5] Therefore, attention deficit and hyperactivity disorders, intellectual development disorder, autism spectrum disorder and previously deadly clinical conditions associated with a high risk of brain functioning sequelae in survivors, such as great prematurity, cancer disease, degenerative neurological disease and chronic diseases in general, have emerged.[5,21] Healthcare institutions have been adapted in order to meet these needs.

In this study, different responses in the area of NDP were found in Portuguese hospitals. In about one third of Portuguese hospitals (14/45), specific consultations have been developed within the scope of neurodevelopmental disorders, which clearly reflect the most common, challenging and emerging disorders. Eight hospitals have provided differentiated outpatient care for hyperactivity, eight for biological risk and seven for autism, allowing for a standardised approach to more specific pathologies.[1]

CONCLUSION

This was a nationwide study with a 100% response rate, based on official hospital records and data provided by those directly involved, showing a significant increase in public hospital response in neurodevelopmental paediatrics, with a three-fold increase in the number of consultations and a clear increase in staffing, from a multidisciplinary perspective and a lower number of patients in the waiting list and lower waiting time to a consultation. Improvements have also been found as regards medical training, as about one fifth of the paediatricians working in NDP hold a NDP Special Course of Study, while ten years ago such training did not exist. Despite a positive progression, there is still room for improvement. Medical professionals only had less than a quarter of their working hours available for post-consultation tasks, which is clearly suboptimal and a reason for dissatisfaction.

Hospitals have made the required reflection, still asking for staffing reinforcement, mainly focused on psychologists.

However, the awareness on the fact that these are chronic diseases presenting in the paediatric age and that they mostly remain and in need for healthcare and psychosocial care in adulthood is crucial.[2]

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HUMAN AND ANIMAL PROTECTION

The authors declare that this project complied with the regulations that were established by the Ethics and Clinical Research Committee, according to the 2013 update of the Helsinki Declaration of the World Medical Association.

DATA CONFIDENTIALITY

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

CONFLICTS OF INTEREST

The authors declare that there were no conflicts of interest in writing this manuscript.

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