

Services Delivered by the Department of Paediatric Neuroscienc at Walk- in Clinic: A Study in Tertiary Care Children Hospital in Bangladesh

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Abstract

Original Research Article

Introduction: Outpatient services usually cost less, because you don't need to stay overnight. Staff members at outpatient centers are well trained in the service they provide. Neurodevelopmental Disorders (NDDs) are a heterogeneous group of conditions that share a commonality of abnormal development and functioning of the brain. Paediatric Neuroscience Department of Dhaka Shishu Hospital provides outpatient services for the children having neurodevelopmental problem without an overnight stay. **Aim of the study:** The aim of the study was to evaluate the clinical patterns of neurological and neurodevelopmental disorders of children attending in the OPD in the clinic. **Materials and methodology:** This retrospective study was conducted in the Outpatient department of Neuroscience Department of Dhaka Shishu (Children) Hospital where a multi-disciplinary team comprising a physician, developmental therapist and child psychologist used to give service. Patients were contacted in Outpatient department of Neuroscience Department who were enrolled in OPD registration from March'2019 to August'2019. A total 3632 out patients were selected for the study. Data were organized and prepared on a spreadsheet. All statistical tests were run on SPSS for Windows version 16.0 software. **Results:** Total 3632 patients attended the OPD clinic. Nine hundred and two (902) patients were referred to other clinics. Most of the patients (400) were referred for general assessment and (400) mental health clinic, Ninety (90) for psychological assessment, Seventy nine(79)for admission, Seventy one (71) to SAHIC for hearing assessment and the least fifty five(55) patients were referred to SLC(speech, language clinic) respectively. From the patients most of them (24.59%) had motor delay. Then 21.28% had cerebral palsy. After that 20.76% had epilepsy/seizure, 14.84% had other neurological disease, 8.89% had speech problem, 6.53% had mental health problem (ASD/ ADHD/ Behavioural problem). 0.85% had sequelae of Meningitis, 0.85% had Febrile Seizure and the least 0.17% had Neuro Metabolic Disorders. **Conclusion:** A multi-disciplinary team approach to management was able to achieve good follow-up response within a busy neurology OPD, where one-fourth was referred to other services. A study to measure quality of life and disabilities in the attending children needs to be conducted in future.

Keywords: Psychological Assessment, Neurological Disease, Epilepsy, Seizure.

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INTRODUCTION

Outpatient services usually cost less, because you don't need to stay overnight. Staff members at outpatient centers are well trained in the service they provide. Most of the time, these centers specialize in one kind of treatment or procedure. Often all the care you need can be provided in one place. Most people can choose an outpatient center instead of a hospital if the needed service is available. But not all medical procedures can or should be done at an outpatient

center. Neurodevelopmental Disorders (NDDs) are a heterogeneous group of conditions that share a commonality of abnormal development and functioning of the brain [1]. They are considered Neurodevelopmental in that by definition as they originate during the developmental period i. e, during the prenatal, ante-natal, post-natal, infancy and early childhood periods. The disorders have varying degrees of associated burden on children, their families and their communities and almost always require multi-faceted services to address special educational, health

care, social inclusion and rehabilitation needs [2]. There are lifelong implications for those who live with the condition – affecting cognition, behaviour, emotions, academic performance, social well-being, and future career [3]. Diagnosis is usually by clinical interview reports from significant others, observations and use of standardized tests [4]. The neurodevelopmental disorders may manifest singly but often co-occur with other developmental disorders [1, 4]. Early identification and intensive interventions have the potential to maximize the developmental outcome for the child and prevent secondary comorbidities [5, 6]. The risks for neurodevelopmental disorders are multifactorial with developing countries carrying a greater burden [3]. Understanding the local epidemiologic profile and effects of medical morbidities in a given society is invaluable for rational utilization of medical resources and facilitate individual patient management and public health intervention processes [7]. The implications of epidemiologic morbidity data also extend to planning of resource allocation for medical education and research goals [8]. The importance and utility of epidemiologic medical morbidity data is huge, and given unduly little emphasis in resource limited countries [9, 10]. In particular, neurologic morbidity data are scarce and or outdated in most developing countries. One doctor may recommend a center and also ask family or friends who have used outpatient services to tell you about their experiences. There is no available study on the morbidity characteristics of patients seen at the outpatients in Bangladesh. The majority of studies of neurological disorders are done [11-14]. Therefore, there is a need for additional descriptive data on morbidity patterns of pediatric neurologic disorders in developing countries like Bangladesh. It will not only help in rationale allocation of the meager health resources available but also in the design of future analytic studies. In our country in department of Neurosciences provide outpatient services for the children having neurodevelopmental problem without an overnight stay. Many procedures and tests can be done in a few hours. The aim of the study was to evaluate the clinical patterns of neurological and neurodevelopmental disorders of children attending in the OPD in the clinic.

OBJECTIVES

The objective of the study was to evaluate the clinical patterns of neurological and neurodevelopmental disorders of children attending the clinic.

MATERIALS AND METHODOLOGY

This retrospective study was conducted in the Outpatient department of Neuroscience Department of Dhaka Shishu (Children) Hospital which is the largest children hospital in Bangladesh having total 576 bed capacities. Patients were contacted in Outpatient department of Neuroscience Department who were enrolled in OPD registration. A total 3632 out patients

were selected for the study. Of them 2151 were new cases and the rest 1481 were old cases for follow up. Brief history, clinical examination and developmental assessment is done for every new case by a RMO who is having enough experiences in Child Neurology and Development. Functional assessment is done by a Developmental Therapist at the same sitting. When necessary, lab tests and scans are given for the patient. Initially treatment is started in accordance with provisional diagnosis. Referral is needed for different reasons like, psychological assessment, in patient admission, further opinion from seniors, speech, language and communication clinic, Mental Health clinic, Hearing assessment centers and other OPDs for comorbidities. Necessary medication is prescribed by the on duty RMO. Different strategies like play therapy, activities of daily living (ADL), social activities, family therapy, massage etc, cognitive stimulation, improvement of speech, language and communication, improve quality of seating and feeding, help to maintain appropriate posture, nutritional and dietary advice, counseling to parents regarding home stimulation therapy to improve functions, improvement of developmental delay and management of epilepsy patients. Passive exercise is given for Spastic patients for dystonic patients maneuver like leg strengthening, side sitting, cross sitting, upright sitting, prone position with pillow support, prone position in mothers lap etc, are done. For drooling–mouth exercise is performed. Those who are having speech problem, then after assessment, exercise are given for the word level or sentence level. Children having cognitive deficit, at early stage, cause and effect maneuver is done, after then object permanence is taught. How to improve the vision with reflecting paper or torch light beam is exercised for the children with low vision. Rattle sound, voice bell etc, are used for hearing improvement. Behavior modification strategy is given for the children having behavior problem. Data were organized and prepared on a spreadsheet. Diagnoses were categorized based on the International Statistical Classification of Diseases and Related Health Problems version 10 (ICD-10) [15]. All statistical tests were run on SPSS for Windows version 16.0 software.

RESULTS

From the Figure-1 the bar graph shows the distribution of the studied people according to age where the total studied people were N=3632 person. It has been observed from the age of 0 to 6 months found 272(7.49%) patients. However, this percentage becomes double for the age group of 6 to 12 months; there were 588(16.19%) patients in that group. On the contrary we can see the highest number of the patients 1929(53.11%) in the age group of 1 to 5 years and then 843(23.21%) found in >5 years old patients. We found most of the study patients 1914(52.70%) were female and the rest 1718(43.30%) were male in Figure-2. Females are suffering most than male according to our findings. Month wise distribution of the referred cases

of 3632 studied patients were shown in Table-1. About 902 patients referred in total. In March there were 628 patients come in the clinic of the about 128 patients referred in other hospital/department for the next treatment. Of them 45 patients referred for general assessment (G/A), 40 for mental health (MH), 41 for psychological assessment (PA), 30 for SLC and 3 patients referred in SAHIC. In August maximum patients (808) come in the hospital. Then 89 patients referred for G/A, 22 patients referred for both MH & P/A, 42 referred to CA, 8 patients referred in SLC and 33 patients referred to SAHIC. Respectively, in July 708 patients come in the hospital. Then 76 patients referred for G/A, 50 patients referred for MH, 9 patients for P/A, 14 referred to CA, 10 patients referred in SLC and 31 patients referred to SAHIC. From the 902

referred patients of the clinic most of the patients 400 were referred for general assessment. Then 400 were referred to check the mental health, 90 for psychological assessment, 79 for consultancy admission, 71 to SAHIC and the rest 55 patients referred to SLC respectively, showed in Figure-3. From the total 3632 patients most of the patients 893(24.59%) had motor delay. Then 773(21.28%) had cerebral palsy. After that 754(20.76%) study people had epilepsy/seizure, 539(14.84%) had other neurological disease, 323(8.89%) had speech problem, 237(6.53%) had ASD/ADHD/Behavioural problem. Both Sequelae of Meningitis, Febrile Seizure found 31(0.85%) patients and the rest 6(0.17%) had Neuro Metabolic Disorders respectively (Table-2).



Figure-1: Distribute the study people according to age (N=3632)

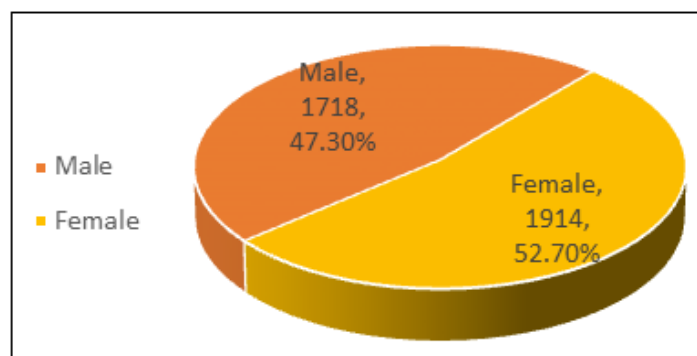


Figure-2: Gender distribution of the study people (N=3632)

Table-1: Distribution of referred cases of the study people (N=3632)

Month	Total Pt	Total referred	Distribution of Referred case					
			G/A	MH	P/A	CA	SLC	SAHIC
March	628	128	45	40	41	10	30	3
April	535	79	50	17	12	13	6	2
May	480	89	65	18	2	0	1	2
June	477	80	75	60	4	0	0	0
July	704	232	76	50	9	14	10	31
August	808	294	89	22	22	42	8	33
Total	3632	902	400	207	90	79	55	71

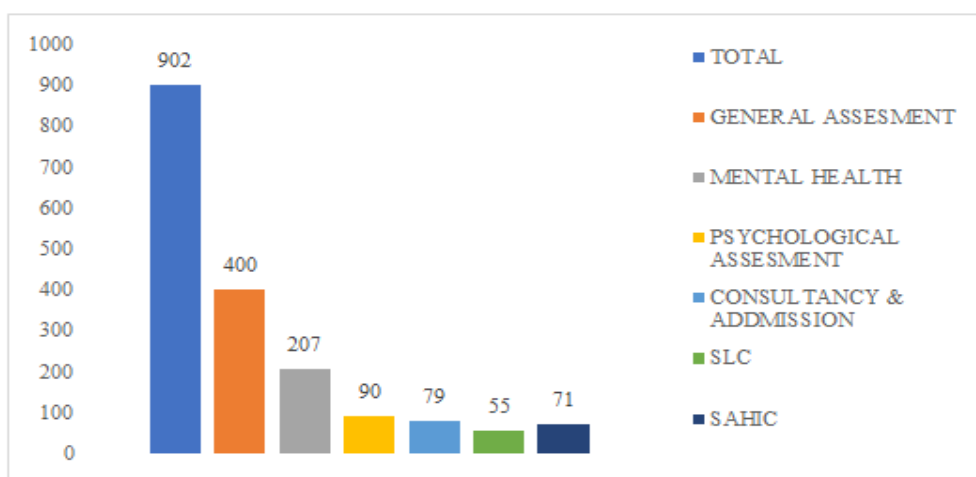


Figure-3: Management of the referred patients (N=3632)

Table-2: Distribution of disease among the study patients (N=3632)

Name of Disease	n	%
Cerebral Palsy	773	21.28
Motor Delay	893	24.59
Epilepsy/Seizure	754	20.76
Sequelae Of Meningitis	31	0.85
Asd/Adhd/Beh.Prob	237	6.53
Speech Problem	323	8.89
Neuro Metabolic Disorders	6	0.17
Down's Syndrome/Hypothyroidism	45	1.24
Febrile Seizure	31	0.85
Other Neurological Diseases	539	14.84
Total	3632	100

DISCUSSION

The neurodevelopmental disorder constitutes the most occurring group of disorders with high rates of both homotypic and heterotypic comorbidity among children accessing mental health services [16]. In our country in department of Neurosciences provide outpatient services for the children having neurodevelopmental problem without an overnight stay. To evaluate the clinical patters of the study patients this study gone through. In a total 3632 patients we found 0 to 6 months 272(7.49%) patients. However, this percentage becomes double for the age group of 6 to 12 months, there were 588(16.19%) patients in that group. On the contrary we can see the highest number of the patients 1929(53.11%) in the age group of 1 to 5 years and then 843(23.21%) found in >5 years old patients. Some other study conducted in different countries in Africa like Ethiopia, Nigeria, Ghana took the study people from 0-5 and above [16-18]. We found most of the study patients 1914(52.70%) were female and the rest 1718(43.30%) were male. Females are suffering most than male according to our findings. Similar results found in a study of Nigeria [17]. But Ayalew Moges *et al.*, found in his study more than half 60.2% (136 of 228) of the patients were male¹⁶. Month wise distribution of the referred cases of 3632 studied patients about 902 patients referred in total. In march there were 628 patients come in the clinic of the about

128 patients referred in other hospital/department for the next treatment. Of them 45 patients referred for general assessment (G/A), 40 for mental health (MH), 41 for psychological assessment (PA), 30 for SLC and 3 patients referred in SAHIC. In August maximum patients (808) come in the hospital. Then 89 patients referred for G/A, 22 patients referred for both MH & P/A, 42 referred to CA, 8 patients referred in SLC and 33 patients referred to SAHIC. Respectively, in July 708 patients come in the hospital. Then 76 patients referred for G/A, 50 patients referred for MH, 9 patients for P/A, 14 referred to CA, 10 patients referred in SLC and 31 patients referred to SAHIC. From the 902 referred patients of the clinic most of the patients 400 were referred for general assessment. Then 400 were referred to check the mental health, 90 for psychological assessment, 79 for consultancy admission, 71 to SAHIC and the lest 55 patients referred to SLC respectively. From the total 3632 patients most of the patients 893(24.59%) had motor delay. Then 773(21.28%) had cerebral palsy. After that 754(20.76%) study people had epilepsy/seizure, 539(14.84%) had other neurological disease, 323(8.89%) had speech problem, 237(6.53%) had Asd/Adhd/Beh.Prob. Both Sequelae of Meningitis, Febrile Seizure found 31(0.85%) patients and the lest 6(0.17%) had Neuro Metabolic Disorders respectively. This result was somehow similar to the study done in

Eritrea by Z. Ogbe *et al.*, [12] where the commonest neurologic disorders were epilepsy 25.9%, cerebral palsy 19.3 %, post febrile illness neuro problems 12.5 %, speech and language problems 10.9 % and mental retardation including Down syndrome 10.7 %. Our finding was also similar to a study done in Port Harcourt, Nigeria by A. I. Frank Briggs *et al.*, [20] where the most frequent pediatric neurological disorders were epilepsy (24.6%), cerebral palsy (15.4%), and central nervous system infections (9.5%), micro-cephaly (7.6%) and mental retardation (7.2%). In a study done in an OPD pediatric physiotherapy unit of a Nigerian Tertiary hospital by Omole J. O *et al.*, [20] cerebral palsy accounted for the highest rate (50.3%) of cases referred for physiotherapy among which only 9.5 % (14 of 148) of cerebral palsy cases had unknown cause.

Limitations of the study:

The present study has the sample size of the study was small due to time and resource constraint, only 3632 samples were collected. The study was conducted in one tertiary care hospital of Bangladesh, so the findings may not represent the situation of whole country.

CONCLUSIONS AND RECOMMENDATIONS

A multi-disciplinary team approach to management was able to achieve good follow-up response within a busy neurology out patients department, where one-fourth were referred to other services. A study to measure quality of life and disabilities in the attending children needs to be conducted in future

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Conflict of Interest: There is no financial conflict of interest relevant to this paper to disclose.

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