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Early Intervention of Communication Disorders in Jordan

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Abstract: Early intervention of children with communication disorders helps in meeting their needs as early as possible. The current study investigates the reasons and factors that affect the early diagnosis for children with communication disorders and providing the relevant rehabilitation services this was a cross-sectional descriptive study. The participants were parents of children with communication disorders living in the Northern, Southern and middle regions of Jordan whose children either had been diagnosed or were receiving treatment at six centers in the capital city of Amman. All participants completed a semistructured questionnaire on the rehabilitation services offered to their children. A total of 200 parents of patients with communication disorders completed the questionnaire. Findings revealed that the majority of the patients (175, 87.5%) received speech therapy, followed by occupational therapy (87, 43.5%). The majority of the children were diagnosed between the ages of 0 and 3(155, 77.5%). According to the results, parent education and household salary had a significant effect ($p<0.05$) on the age at diagnosis and there is a lack of awareness regarding the significance of early intervention for children with communication disorders and lack of programs providing early intervention for children with communication disorders in Jordan. Parents need to be educated regarding what to do and where to seek rehabilitation services when they have a child with communication disorders. Additionally, speech-language pathologists and other health care providers should consider providing early intervention on a systematic manner.

INTRODUCTION

Communication disorders include difficulty with receiving, processing, comprehending and sending verbal or nonverbal messages[1]. There are several underlying conditions that contribute to the presence and development of communication disorders such as family history of communication disorders, premature delivery and/or gender[2-4]. Early identification and interventions should be provided to children with communication disorders as these disorders may be under represented compared to other obvious disabilities[5]. Also, parents may have a lack of awareness of the warning signs of the presence of communication disorders or even the benefits of early intervention.

Early intervention is beneficial in meeting the child's needs as early as possible and may lower the financial burdens for the family[6, 7]. In the United States of America for example, children receive early intervention (which addresses different developmental skills/abilities including hearing) from birth to 3 years of age while children with developmental problems are offered early childhood education services at age of 3-5 years[8, 9]. The American Academy of Pediatrics recommends that children should be under surveillance of developmental skills starting from birth to the age of 3[10]. According to the Canadian Pediatric Society, newborns should be screened for hearing[11]. However, the relatively small number of speech language pathologists worldwide and the lack of financial support for speech therapy services remain a concern according to some studies. For example, a survey was conducted among 154 parents in Australia to study the parent's point of view regarding speech therapy services offered to their children[12]. Findings revealed that 60% of parents reported being satisfied with services while 27% were unsatisfied. Also, parents faced challenges such as lack of services, long waiting time to receive services and difficulty affording private services. Another study was conducted on 81 Australian and 63 Canadian speech pathologists comparing their impressions about challenges they encounter in their clinical practice. Results showed scarcity of speech pathologist available positions, lack of parent's awareness of speech pathologist's roles and the exact need for speech pathologist's services[13].

Rehabilitation services offered to individuals with communication disorders vary based on their needs and associated disorders. Such services may include speech therapy, occupational therapy and physiotherapy[14]. However, there is an insufficient number of health care providers in many countries worldwide[12, 13, 15].

Several studies have investigated early intervention and rehabilitation services for children with disabilities including communication disorders[7,12]. However, research on early intervention of communication disorders in Jordan has not been sufficient. The aim of the present study, therefore was to investigate the rehabilitation services provided for children with communication disorders in Jordan. One objective was to identify reasons that might prevent the delivery of the required rehabilitation services to Jordanian children. Another objective was to identify the effects of several factors-Jordanian parent's level of education, age and level of income-on the early detection of communication disorders.

MATERIALS AND METHODS

Study design: This was a cross-sectional descriptive study carried out in Jordan. Convenience sampling was employed.

Participants and instruments: The study sample consisted of 200 Jordanian participants parents. All participants had children with communication disorders who were either diagnosed and/or received treatment in six centers in the capital city of Amman, Jordan. Participants who completed the questionnaire were recruited based on the formal children's diagnosis of communication disorders. All parents had their children enrolled in speech therapy services.

A self-administered, semi structured questionnaire comprised of three main sections: demographic information of both parents (age, gender, residence, education, career and family income); children's' age, gender, communication disorders and other associated disorders) and received intervention and rehabilitation services. Information collected from parents included household salary categorized into three salary groups (JD 0-399, 400-500,>500). on the three salary categories were targeted based on an online database that provides information about living conditions in various cities and countries, Numbeo[16] and the Azzeh report of Jordanian family income where the monthly average salary reported ranged from 400-500 JDs.

The third section of the questionnaire (Appendix 1). "Intervention and rehabilitation services" consisted of four questions about the age of detection of the child's problem whether the child received any kind of rehabilitation services, reasons for not obtaining/enlisting in services and the rehabilitation services the child received. Questions consisted of multiple choice and informational

questions (e.g., what was the age of your child when he/she was diagnosed with a communication disorder?).

Procedure: Institutional Review Board approval was granted by the Deanship of Scientific Research at the University of Jordan and parental informed consent was obtained.

Analysis: Data analysis of frequencies and percentages was performed using the Statistical Package for the Social Sciences Software (SPSS) 17.0. A chi-square test was used to calculate differences between categorical groups. A $p<0.05$ was preset for statistical significance.

RESULTS AND DISCUSSION

The parental sample consisted of 71 (35.5%) men and 129(64.5%) women (male to female ratio 1:1.8). Parent's age range was 32-35 years with a mean age of 37.4±6.3 years. Parents and their children resided in 13 cities in Jordan. Parent's demographic information is shown in Table 1.

The children's sample consisted of 74(37.0%) boys and 126(63.0%) girls (male to female ratio 1:1.7). The age range was 2-17 years with a mean age of 7±3 years. Table 2 lists children's demographic information. A number of children (139, 69.5%) had other associated conditions than communication disorders such as motor problems (78, 56.1%), behavioral problems (63, 45.3%), academic problems (2, 1.4%), visual problems (5, 3.5%) and other medical problems such as epilepsy (8, 5.7%).

The most common types of communication disorders among the children investigated were language disorders (130, 65%), followed by articulation disorders (105, 52.5%). The majority of the children (139, 69.5%) presented with language and/or articulation disorders associated with motor problems. On the other hand, 61 children (30.5%) presented with only one communication disorder. For example, 6 children presented with articulation disorders and 11 presented with stuttering without any other disorders.

Parents were asked about the age at which their children were diagnosed as having a communication disorder and the kind of rehabilitation services they currently received (Table 3). About 155 children (77.5%) were reported to have been diagnosed between birth and 3 years of age. Also, 179(89.5%) children received rehabilitation services, (PT, OT, special education and/or Speech therapy) while 21(10.5%) did not receive any. Some patients who presented with motor disorders received one kind of rehabilitation services (e.g., occupational therapy) while they actually needed more than one service), e.g., speech-language therapy and occupational therapy (The 175 (87.5%) children received speech therapy, 87(43.5%) received occupational therapy, 76(38.0%) received special education and 72(36%) received

Table 1: Parent's demographic information

Factors	Frequencies	Percentage
Gender		
Male	71	35.5
Female	129	64.5
Age (Years)		
23-35	79	39.5
36-55	121	60.5
Education level		
Elementary	15	7.50
Preparatory	11	5.50
Secondary	70	35.0
Higher education	104	52.0
Career		
Vocational	30	15.0
Non-vocational	60	30.0
Unemployed	110	55.0
Salary (Jordanian Dinars)		
0-399	55	27.5
400-500	80	40
500+	65	32.5

Table 2: Children's demographic information

Factors	Frequencies	Percentage
Gender		
Male	74	37
Female	126	63
Age (years)		
>3	16	8
4-5	53	26.5
6-9	95	47.5
10-17	36	18
Communication disorder		
Language disorder	130	65.0
Phonological or articulation disorders	105	52.5
Stuttering	17	8.5
Hypernasality	4	2.0
Voice disorder	1	0.5
Associated problems		
Yes	139	69.5
No	61	30.5

Table 3: Description of age of diagnosis and rehabilitation services

Factors	Frequency	Percentage
Age at which a diagnosis was made (n = 200) (Age years)		
<3	155	77.5
4-5	30	15.0
6-9	12	6.0
10-13	3	1.5
Rehabilitation services		
Speech therapy	175	87.5
Occupational therapy	87	43.5
Physiotherapy	72	36
Special education	76	38
Nutritional therapy	1	0.5
Psychological treatment	1	0.5

Table 4: Age at diagnosis of the communication disorder and profile of the parents and children

	Age at first diagnosis (years)					
Variables	<3	4-5	6-9	10-13	p-values	Chi-square
Parent (n = 200)						
Parents' gender					0.9	0.53
Male	57	9	4	1		
Female	98	21	8	2		
Parent age					0.3	3.6
23-35	63	12	2	2		
36-55	92	18	10	1		
Parent education					<0.001	47.3
High education	94	8	1	1		
Secondary education	48	13	8	1		
Preparatory education	12	3	0	0		
Elementary	1	6	3	1		
Household salary					<0.00 1	38.6
0-399	26	18	8	2		
400-500	71	9	3	0		
500+	58	3	1	1		

physical therapy services. Parents of children who did not attend therapy sessions were asked about the reason (s) for their noncompliance. About 23(11.5%) parents related it to financial issues, 5(2.5%) reported a lack of available facility or specialist, 2(1%) did not know that their child actually needed therapy and 1 parent (0.5%) did not know where to seek rehabilitation services.

Chi-square tests were conducted to compare between parents' subgroups of age, gender, level of education and household salary in relation to the dependent variable of age at first diagnosis (Table 4). Results showed that there were significant differences between parents' level of education ($p<0.05$) and household salary ($p<0.05$) in relation to the age at which the child was diagnosed.

Most children included in this study (155, 77.5%) were diagnosed between the ages of 0 and 3 years which is defined as the age of early intervention by the American Speech-Language-Hearing Association . This could be due to parents' early attention to some sort of delay or difficulty in motor or communication in their children. In other countries, early intervention (including hearing and developmental skills tests) starts from birth.

Anecdotal evidence based on the clinical experience of the researchers and other rehabilitation professionals indicate that the whole spectrum of health professionals including audiologists and speech pathologists are not fully involved in early intervention efforts in Jordan. The lack of provision of early intervention services may delay the identification of communication disorders at the early stages which may undermine the benefits of any subsequently provided therapy[5]. It is worth noting that some speech problems of children involved in this study emerged at a late age. This may indicate the delay of early intervention efforts. Another factor may be that children who presented with pure articulation problems have not required speech therapy because of the developmental nature of their misarticulation errors (i.e., the misarticulated sounds have not yet been acquired). An example of such developmental errors is the /z/ sound which is expected to be acquired around the age of 6 years and 4 months[18].

Most parents included in the current study reported that their children did not attend therapy because of financial reasons. The parents indicated that they could not afford the costs of treatment sessions (especially if multiple sessions and/or multiple services were required).

The majority of parents reported having a monthly income of JD 400-599 s (USD 556-845) which is the average salary in Jordan). The average rehabilitation session is around JD 20 (USD 28).

The average number of session per week is 3 sessions (JD 60 or USD 85) with a JD 240 (USD 339) per month per child. Apparently, the cost of rehabilitation services is more than an average Jordanian family could afford. It is recommended therefore that speech therapy service be included in public health insurance and/or a more reasonable session price be agreed upon by stake holders (health professionals, facilities and clients).

Another reason reported was the shortage of specialized speech therapy professionals in particular and rehabilitation professionals in general. These results are consistent with other studies[12, 13, 15]. The fact that most patients had other accompanying disorders such as motor disorders, required enlisting the child in more than one type of rehabilitation services. Unfortunately, those multiple services that were not available at the center/facility in question.

It was found that parent's level of education was a statistically significant factor in determining the age at which a diagnosis is made.

In other words, the higher education parents have the earlier the child's problem is noted and detected, then diagnosed. As such public awareness campaigns should involve more parents of different education level. Those campaigns should involve parents in all their activities regarding early diagnosis of communication disorders. An example of educational campaigns is the one advocating organized early screening and intervention of healing loss[19, 20].

Communication disorders and hearing screenings are common practice at the University of Jordan speech and Hearing Sciences Department and Hearing and Speech Clinic. Those screenings are offered as a voluntary effort for some schools and preschools in different cities in Jordan each year as part of its public services.

However, systematic screening provided for children is not yet common practice in Jordan. This study also emphasized the importance of promoting public awareness by engaging speech-language pathologists in giving lectures and using the media, for example, in addition to providing organized screening[11, 21-23] (Appendix 1).

CONCLUSION

There is still a need for organized efforts that provide early intervention for children with communication disorders in Jordan.

Also, it is crucial to target parent's awareness about the rehabilitation services required for Jordanian children with communication disorders. Parents need to be educated regarding what to do and where to go when their child is challenged with a communication disorder.

Additionally, speech-language pathologists and other health care providers (either public or private) should consider providing early intervention in a timely cost effective manner.

LIMITATIONS

The study may be prone to recall bias because it was based on parent's input. The study focused on early intervention and rehabilitation services for communication disorders offered in some centers in Amman, the capital city of Jordan and it may not be generalized to all other areas in the country. It is recommended that future studies target a larger sample in various cities in Jordan other than Amman.

APPENDIX

Appendix 1: Intervention and rehabilitation services questionnaire

Parent information

- Age
- Gender
- Residence
- Education
- Career
- Family income (amount)
- Child information
- Age
- Gender
- Communication disorder/s
- Other associated disorders

Intervention and rehabilitation services:

- Age of discovering communication disorder/s
- Does your child attend rehabilitation services?
- Yes
- No
- If your son/ daughter does not attend rehabilitation service/s, why?
- No speech pathologist is available
- Financial problems (cannot afford treatment)
- Other cause/s (specify):
- What kind of rehabilitation services does your child receive?
- Speech therapy
- Occupational therapy
- Physiotherapy
- Other (specify)

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