

Public awareness of delayed language development in Upper Egypt

Eman Mostafa, Mona El-Rabie Ahmed

Phoniatric Unit, Department of Otolaryngology,
Sohag University, Sohag, Egypt

Correspondence to Eman Mostafa, MD, PhD,
Phoniatric Unit, Ear, Nose and Throat
Department, Sohag University Hospital, Sohag
82514, Egypt Tel: + 20 100 314 5617;
e-mail: eman_mostafa@med.sohag.edu.eg

Received 28 May 2017

Accepted 16 July 2017

The Egyptian Journal of Otolaryngology
2018, 34:94–102

Aim

The aim of this study was to investigate public awareness and the attitude of delayed language development (DLD) in children in Sohag, Upper Egypt.

Patients and methods

The Phoniatric Unit at Sohag University Hospital receives a considerable number of belated cases of children with DLD. No Egyptian surveys were found collecting information about public awareness and knowledge of DLD and speech–language pathology services. A cross-sectional survey was done of both male and female participants who were asked to fill in a questionnaire. The questionnaire contains participant's demographic information, eight closed-ended questions, and one open-ended question, addressing their knowledge and attitudes toward DLD.

Results

The questionnaire was introduced to 1500 questionnaires (1380 have returned; 92% response). Good awareness of DLD in children was recognized in 74.49% of the study group. The age of 2 years was thought to be the most suitable age to seek medical advice for children with DLD in 48.84% of the study group. Some occupations such as teachers did not value early intervention of language delay. Language therapy was thought to be the best way to treat DLD in 68.7% of the study group.

Conclusion

There is limited awareness of the value of early language learning and the best treatment of DLD. Awareness should be raised and changing the attitude of individuals in some occupations, especially teachers, toward DLD should be addressed.

Keywords:

attitude, awareness, delayed language development, upper Egypt

Egypt J Otolaryngol 34:94–102

© 2018 The Egyptian Journal of Otolaryngology

1012-5574

Introduction

Improved communication skills lead to higher standards, improved behavior, greater confidence, and better learning [1]. Delayed language development (DLD) affects about 5–10% of children [2]. Language problems are the result of mental retardation, physical handicaps, hearing loss, neurological problems, or environmental deprivations [3]. It has serious sequelae into adulthood in terms of educational, social, and emotional development [4]. Early identification and early intervention for those children who receive timely and appropriate services offer the best chances of improvement and markedly better quality of life [5,6]. Language delay can usually be identified at the age of 24 months [7,8]. Communication development in the early years is closely linked to and dependent upon the input and stimulation received from primary caregivers. The disturbed interactions between the caregiver and child place the infant at risk for a communication disorder [9]. Hence, they play an important role in the early identification of language disorders.

Killamey and Lass [10] used a telephone survey to discover what a rural population in West Virginia, America, knew about the work, location, and education of speech–language pathologists (SLPs). They concluded that there was a strong need for increased awareness about speech–language therapy as some of the participants (58%) were not aware of such services and their availability to them. In addition, UK-based surveys were conducted and revealed limited public awareness of speech–language pathology [11,12]. One may argue that limited awareness could be attributed to poor means of communications and technology at that period of time in which those surveys were conducted. Nowadays, the media plays an important role in acquiring information and knowledge. Nevertheless, American Speech-Hearing Association (ASHA) [13] surveyed SLP and audiologist members of ASHA and results indicated that almost half

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work noncommercially, as long as the author is credited and the new creations are licensed under the identical terms.

of ASHA members suggested lack of awareness as the most important barrier to early detection of communication disorders.

Statistical levels of public awareness and knowledge of speech–language pathology and of communication disorders such as DLD are currently unknown in Egypt, including Sohag. No Egyptian surveys were found collecting information about public awareness and knowledge of DLD and speech–language pathology services. One survey by Mahmoud *et al.* [14] in Amman, Jordan, which investigated the public awareness of speech–language pathology and the knowledge of communication disorders in 1203 participants, revealed limited public awareness. Poor public awareness could be because of unavailable speech–language therapy services, inadequate funding, and poor public empathy for people with communication difficulties. The aim of this study was to conduct a cross-sectional survey, the first of this type in the region, to understand how this problem is perceived by the public and the effects of these perceptions on their attitude toward DLD.

The speech–language pathology is concerned with the study and understanding of human communication and its disorders, and assessment and treatment of swallowing, speech, language, and cognitive communication disorders that result in communication disabilities [15]. Phoniatics was introduced to the medical field in Cairo, Egypt, dating back to the early 1970s [16,17], whereas in Sohag, Upper Egypt, it dated back to 1995. Speech–language pathology in Egypt is practiced exclusively by phoniaticians and logopedists/SLPs. Phoniaticians are doctors who are holding a bachelor degree of medicine, followed by a masters degree in phoniatics, and then possibly an academic doctoral degree. They make the diagnosis, draw the plan of intervention, perform parts of the intervention program, educate and train personnel in the field, and conduct research. Logopedists are nonmedical SLPs. They require an undergraduate degree in language, psychology, and sociology, followed by postgraduate 2-year training in logopedics (speech pathology) to earn a certified diploma. Logopedists share the diagnostic procedures and formal testing, develop and perform the behavior readjustment therapeutic methods, and collaborate in the research programs. The Phoniatic Unit at Sohag University Hospital receives a considerable number of belated cases of children with DLD, an issue that motivated the authors to provide estimates for key population indicators of awareness of the community toward DLD

in children and to draw out recommendations to raise the public awareness.

This survey was done in Sohag City, Upper Egypt. Upper Egypt is a narrow strip of land on both sides of the Nile that extends from modern-day Aswan to the area south of modern-day Cairo. Sohag (so'hæ:g) lies on the western bank of the Nile on a fertile agricultural plain. It lies midway between Aswan and Cairo. There were a number of differences between upper and lower Egyptians in the ancient world. They spoke different dialects, and had different customs, needs, and interests. Many differences and the tensions they create still exist in modern times [18].

Patients and methods

A questionnaire was designed according to the recent methodological literature [19,20]. The questionnaire contained two sections. The first section contained demographic data of participants. Different information was collected from the investigated group, who were asked their age, sex, profession, and education. They were not asked their names or the name of the affiliated institution. The second section of the questionnaire was composed of eight closed-ended questions and one open-ended question addressing attitudes and knowledge of healthcare professionals. The questionnaire survey with closed-ended questions is one of the most commonly used tools for user information elicitation [21].

A pilot study was conducted using a small group of participants ($n=20$) to study the responses, obtain feedback for further changes, and to ensure that the time to complete the survey is adequate. The wording, the order of the questions, or the range of answers on multiple choice questions and the number of open-ended questions were modified and adjusted. The open-ended questions were decreased because of larger item nonresponse. It seems that respondents restricted themselves with apparent ease to the alternatives offered on the close-ended forms knowing that closed-ended questions had the disadvantage of the bias that may result from suggesting responses to individuals.

The questionnaire had undergone internal validation (face validity and content validity) by two professors in the Phoniatic Unit at Sohag University Hospital. Fine adjustments to the questions were done to ensure the clarity, accuracy, and to exclude

ambivalence. Data were collected by face-to-face interview of 5–7 min duration.

A cross-sectional survey was done of several groups of the society through visiting four schools, four governmental institutions, Sohag University, salespersons, and housewives in Sohag City, Upper Egypt. Age groups were divided into three subgroups: less than 35 years, 35–50 years, and above 50 years. Educational groups varied from technical and vocational, middle technical institutes, and high education. As regards occupation, we aimed at different occupations such as teachers, architects, workers, accountants, employers, and salespersons.

The ethical considerations were addressed. The study was approved by the Ethical Committee of Faculty of Medicine, Sohag University, Egypt. All participants were given both written and oral information about the study. A written consent for participation was obtained from each participant. Statistical analysis was conducted using SPSS program (version 16; SPSS Inc., Chicago, Illinois, USA). Regarding the analysis of the occupation group, it was divided into two subgroups (i.e. teachers and others). All occupations except teachers were merged into one group in an attempt to compare the awareness and attitude of the educators with noneducators. A transcript of the used questionnaire is present in Appendix.

Results

A total of 1500 questionnaires were distributed (1380 have returned; 92% response). Descriptive statistics were computed for individual survey items pertaining to the characteristics of the participants. Age range was

Table 1 Characteristics of participants

Characteristics	Summary statistics [<i>n</i> (%)]
Age	
Mean (SD)	38.20 (9.11)
Median (range)	37 (20–66)
Age	
<35	498 (36.09)
35–50	742 (53.77)
>50	140 (10.14)
Sex	
Female	562 (40.7)
Male	818 (59.2)
Education	
Technical and vocational	388 (28.1)
Middle technical institutes	138 (10.0)
High	854 (61.8)
Occupation	
Teacher	688 (49.8)
Others	292 (50.1)

between 20 and 66 years, with a mean of 38.20 years (Table 1).

Awareness of DLD in children was reported in 74.49% of the study group. Respondents were asked to indicate their source of knowledge about DLD. The main source of knowledge was from relatives and acquaintances ($n=670$; 48.55%) (Table 2). In addition, respondents were asked to advise a parent of a 2-year-old child with language delay about the best treatment. Consulting a doctor was the response of the majority of the respondents ($n=1118$; 81.01%), whereas the minority of the respondents ($n=86$; 6.23%) advised to eat a tongue of a crow (Table 3). A phoniatician was chosen by 66.09% to be the best specialist for treating DLD. On the other hand, 13.19% advised mothers to go to a neurosurgeon or neurologist, whereas 8.26% advised them to go to a pediatrician. A small percentage (6.23%) of the study group advised them to go to an otolaryngologist.

The respondents were asked about which age the parent should seek medical advice for her/his child's delayed language. Almost half of the respondents ($n=674$; 48.84%) thought that the age of 2 years was best, whereas 37.39 and 12.56% of the respondents thought that the age of 3 and 4 years, respectively, is the best. A small percentage of respondents (1.30%) advised that mothers should wait until the child is older than 4 years. When the respondents were asked about the best treatment of language delay in children, a large percentage of them ($n=948$; 68.7%) reported language therapy, whereas 13.33% of the respondents reported medical treatment. Surgery, combined lines of treatment, and others lines

Table 2 Responses to question 1 (Q1) and question 2 (Q2)

Q1. Are you aware of Delayed Language Development (DLD) in children?	
No	352 (25.5)
Yes	1028 (74.4)
Q2. If yes, what is the source of your knowledge about Delayed Language Development in children?	
(A) Internet	252 (18.2)
(B) Television and radio	216 (15.6)
(C) Relatives and acquaintances	670 (48.5)
(D) Others	242 (17.5)

Data are expressed as *n* (%)

Table 3 Responses to question 3 (Q3)

Q3. If you met a parent of a 2-year child with delayed language, what would you advice her?	
(A) Wait and see	176 (12.7)
(B) Eat a tongue of a crow	86 (6.2)
(C) Consult a doctor	1118 (81.0)

Data are expressed as *n* (%)

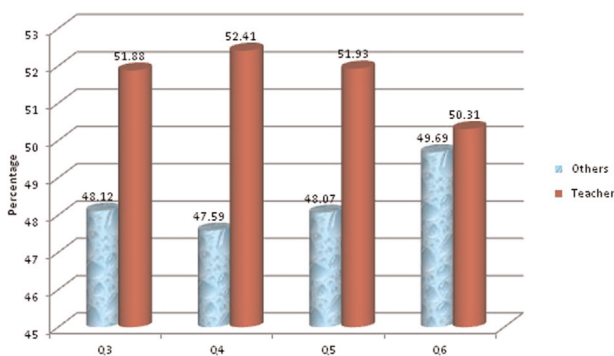
of treatment were the best chosen ways of treating DLD for 5.51, 1.30, and 9.71%, respectively.

The relationship between participants' personal traits and characteristics was investigated in relation to knowledge about DLD and speech-language pathology services. Occupation did not differ significantly with good awareness of DLD, except the teachers who had significant difference in response to Q3, in which people were asked about their advice to parents of children with DLD ($P=0.0008$) and Q4 ($P=0.02$) (Fig.1). When the respondents were asked about prior knowledge of a child with DLD in Q7, a large percentage of them ($n=934$; 67.68%) gave a positive response, and this knowledge was highly correlated with their awareness of DLD in children ($P=0.0001$). In addition, it was highly

correlated to their good knowledge of the best doctor for DLD in children ($P<0.0001$) (Tables 4 and 5).

Age and sex did not appear to affect the knowledge of the public in all questions. In terms of education, it was divided into three groups: high, middle technical institutes, and technical and vocational institutes. Education level differed significantly in all questions as participants with a high level of education (i.e. with bachelor degree) had more information than other groups, whereas participants with middle technical institutes had the least awareness and knowledge (Table 5 and Fig. 2).

Figure 1



Percentage of awareness of different occupations in different questions. Q3: If you met a parent of a 2-year old child with delayed language, what would you advice her/him? Q4: Who is the best doctor capable of treating Delayed Language Development in children? Q5: In which age the parent should seek medical advice for her/his delayed language child? Q6: What is the best treatment for Delayed Language Development in children?

Discussion

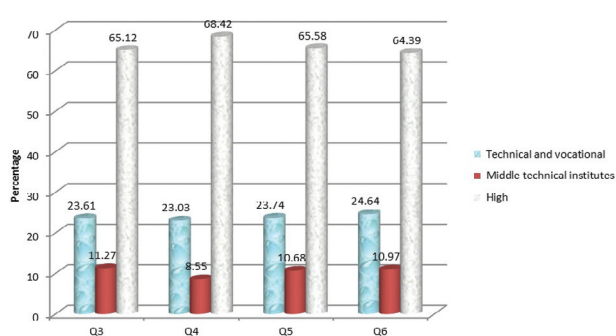
In the majority of the study group, there was good knowledge among the respondents about consulting a doctor for a child with DLD, specifically a phoniatician. Almost half of the respondents believed that the earlier the consultation and seeking medical advice (age: 2 years) the better. Nevertheless, teachers did not value early intervention of language delay. Knowing that the earlier an irregularity is detected, the sooner it can be remedied is important to guarantee the best opportunity possible for the child. Clauson and Kopatic [22] surveyed 50 teachers and found that 64% of the teachers believed children would outgrow their speech problems even beyond the third grade. However, when asked under what circumstances, if any, they would not refer a child with DLD for correction, 76% replied they would refer the child anyway, no matter what the circumstances. More than half of the participants do not realize the value of early language learning in children and how it may impact their social life, as well as learning abilities.

Table 4 Factors affecting responses to Q3: if you met a parent of a 2-year-old child with delayed language, what would you advice her? Q7: do you have a prior knowledge of a child with delayed language development?

Factors	Incorrect answers [n (%)]	Correct answers [n (%)]	Odds ratio	P value
Age				
<35	98 (37.4)	400 (35.7)	1	0.81
35–50	142 (54.2)	600 (53.6)	1.03 (0.78–1.38)	0.29
>50	22 (8.4)	118 (10.5)	1.31 (0.79–2.18)	
Sex				
Female	104 (39.69)	458 (40.9)	1	0.71
Male	158 (60.31)	660 (59.0)	0.95 (0.72–1.25)	
Education				
Technical and vocational	124 (47.3)	264 (23.6)	1	<0.0001
Middle technical institutes	12 (4.5)	126 (11.2)	4.93 (2.63–9.25)	<0.0001
High	126 (48.0)	728 (65.1)	2.12 (1.72–2.63)	
Occupation				
Others	150 (57.2)	538 (48.1)	1	0.008
Teacher	112 (42.7)	580 (51.8)	1.44 (1.10–1.89)	
Q7				
No	170 (64.8)	276 (24.6)	1	<0.0001
Yes	92 (35.1)	842 (75.3)	5.64 (4.22–7.51)	

Table 5 Factors affecting responses to Q4: who is the best doctor capable of treating delayed language development in children?

Factors	Incorrect answers [n (%)]	Correct answers [n (%)]	Odds ratio	P value
Age				
<35	166 (35.4)	332 (36.4)	1	0.42
35–50	264 (56.4)	478 (52.4)	0.91 (0.71–1.15)	0.17
>50	38 (8.1)	102 (11.1)	1.34 (0.88–2.04)	
Sex				
Female	184 (39.3)	378 (41.4)	1	0.45
Male	284 (60.6)	534 (58.5)	2.05 (1.72–2.45)	
Education				
Technical and vocational	178 (38.0)	210 (23.0)	1	0.63
Middle technical institutes	60 (12.8)	78 (8.5)	1.10 (0.75–1.62)	<0.0001
High	230 (49.1)	624 (68.4)	2.30 (1.79–2.95)	
Occupation				
Others	254 (54.7)	434 (47.5)	1	0.02
Teacher	214 (45.7)	478 (52.41)	1.31 (1.05–1.63)	
Q7				
No	232 (49.5)	214 (23.4)	1	<0.0001
Yes	236 (50.4)	698 (76.5)	3.20 (2.53–4.06)	

Figure 2

Percentage of awareness of different levels of education in different questions. Q3: If you met a parent of a 2-year old child with delayed language, what would you advise her/him? Q4: Who is the best doctor capable of treating Delayed Language Development in children? Q5: In which age the parent should seek medical advice for her/his delayed language child? Q6: What is the best treatment for Delayed Language Development in children?

They mistakenly believed that all children develop at their own pace. The 'wait and see' approach is a result of misconception about typical language development. Early intervention is essential for children who have impairments that would limit the normal development of the physical, cognitive, emotional, and social and communication aspects in a child's life. Impairments as such are caused by children or adults who happen to have disorders underlying the umbrella of communication disorders. The goal of early intervention is to preclude or limit the physical, cognitive, emotional, and other restrictions of young children with biological or environmental risk factors [23].

In this study, there was no significant difference between both sex. This was in contrast to Greenwood *et al.* [24] survey, which studied students aged 16 years and older to

determine their levels of knowledge about the profession of speech–language pathology. The research team found that male participants were significantly less familiar with speech and language pathology services than females. In addition, Mahmoud *et al.* [14] indicated that female had higher level of knowledge and information about speech–language pathology services.

Almost three-fourth of the respondents believed that language therapy is the best way to treat DLD, whereas others believed in medication, surgery, electricity, eating a tongue of a crow, bee sting, or swallowing raw amber. Nearly 7% of the participants believe that eating a tongue of a crow would solve the problem. Electricity, eating a tongue of a crow, bee sting, and swallowing raw amber are cultural beliefs. People are convinced that these practices can cure children and help them speak. Although there are superstitious beliefs that the crow brings bad omen, eating its tongue is one of the most popular beliefs for treating DLD in the upper Egyptian traditional medicine. These cultural beliefs are common in Upper Egypt even among educated people and are reflected in a society's healthcare system. On the other hand, some participants thought that medication and surgery such as tongue tie release are the best treatment options for DLD because they are easier and quicker lines of management. Other participants thought that children need to interact with other children of the same age in order to develop their language. For those, kindergartens were considered the best treatment for every child with DLD regardless of the cause. Many of the social psychologists referred that positive attitude is under the influence of primitive beliefs [25]. This suggests the reason of late presentation of children and young adolescents with DLD.

It is important for teachers to identify children with speech and language impairments. Once a suspected impairment has been identified, the teacher should make an appropriate referral for speech and language pathology services. Collaboration between speech and language therapists and teachers is beneficial for supporting children's communication skills [26]. This is very important especially in Egypt because of the absence of speech and language therapists in schools. This study surveyed 688 teachers. They had poor awareness of DLD in all questions except Q3 and Q4 in which teachers advised parents of a DLD child to seek medical advice and to consult a phoniatician, which showed positive attitude toward the problem. Lesser and Hassip [11] noted that there is a strong need for teacher training to include information about speech therapy because they are potential referrers to the speech therapy services. Schaughnessy and Sanger [27] surveyed 484 kindergarten teachers to determine educators' perceptions of the SLP's role in literacy and language development of students. The teachers indicated strong agreement of SLP's effective services, suggestions, and shared role in serving children with language problems, which suggest that teachers value clinicians' contributions.

The major source of knowledge was from relatives and acquaintances, whereas the media (television, radio, internet, and newspapers) had much less contributing factors of public awareness. This may reflect low media presentation of speech–language pathology services as noted by Hughes [28]. Relatives and acquaintances can be under-informed about crucial issues, such as matters of brain plasticity connected to the risk of linguistic deprivation, and delay or disruption in the development of cognitive skills interwoven with linguistic ability. Therefore, more efforts should be directed to raise public awareness through educational websites, movies, and television programs. In addition, issuing press releases presenting University views on relevant issues and providing comments to the media from informed and specialist phoniaticians may be considered.

Education level is linked to awareness as participants with higher educational level (i.e. with bachelor degree) had more information than other groups. However, participants with technical and vocational education (lowest level education) had better awareness than participants with middle technical institutes' education, implying that they get their knowledge from other resources such as relatives, acquaintances, and the media. This suggests directing messages to the less aware and less informed group. If knowledge and awareness is increased, positive attitude will be

maintained. Many participants suggested raising awareness of parents in healthcare units at the time of their child's vaccination. Others suggested educational information tips written on the health insurance card and flyers in hospitals and public institutes. Some of the participants suggested that phoniaticians may visit schools to raise awareness of communication disorders in general and language disorders in particular. Teaching the essential facts about communication disorders in schools, hotline calling and asking specialists, premarriage awareness of future couples, increase awareness of physicians especially pediatricians, increase awareness of teachers, lectures in mosques, churches and clubs, increase centers of phoniatics and presence of a speech pathologist in schools are some of the proposed ideas to increase awareness of communication disorders. Elman *et al.* [29] noted about the public awareness of one of the language disorders, aphasia, and said that 'without public awareness a vicious cycle sets into play – there is less funding for research, less money for services, and, perhaps, most serious of all, less empathy and understanding for people with aphasia.' This principle may be applied to all language and communication disorders.

Limitations

The authors are aware of the limitation of this study as it did not address the impact of the socioeconomic status on the responses of the participants to the questionnaire.

Conclusion

There is limited awareness of the value of early language learning and the best treatment of DLD. Awareness should be raised and changing the attitude of individuals in some occupations, especially teachers, toward DLD should be addressed.

Acknowledgements

The authors thank the Professors in the Phoniatic Unit who helped in the validation of the questionnaire. The authors alone are responsible for the content and writing of the paper.

Sohag University Hospital funded this research.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

- 1 Sage R. Class talk: successful learning through effective communication. Stafford: Network Educational Press; 2000.
- 2 Law J, Boyle J, Harris F, Harkness A, Nye C. Prevalence and natural history of primary speech and language delay: findings from a systematic review of the literature. *Int J Lang Commun Disord* 2000; 35:165–188.
- 3 Luinge MR, Post WJ, Wit HP, Goorhuis-Brouwer SM. The ordering of milestones in language development for children from 1 to 6 years of age. *J Speech Lang Hear Res* 2006; 49:923–940.
- 4 Ward S. An investigation into the effectiveness of an early intervention method for delayed language development in young children. *Int J Lang Commun Disord* 1999; 34:243–264.
- 5 Clark A, Ohare A, Watson J. Severe receptive language disorder in childhood: familial aspects and long-term outcomes: results from a Scottish study. *Arch Dis Child* 2007; 92:614–619.
- 6 Sachse S, von Suchodoletz W. Early identification of language delay by direct language assessment or parent report? *J Dev Behav Pediatr* 2008; 29:34–41.
- 7 Rescorla L, Alley A. Validation of the Language Development Survey (LDS): a parent report tool for identifying language delay in toddlers. *J Speech Lang Hear Res* 2001; 44:434–445.
- 8 Rescorla L, Achenbach TM. Use of the Language Development Survey (LDS) in a national probability sample of children 18 to 35 months old. *J Speech Lang Hear Res* 2002; 45:733–743.
- 9 Rossetti LM. Communication intervention: birth to three 3rd ed. Canada: Singular: Thomson Learning; 2001.
- 10 Killamey GT, Lass NJ. A survey of rural public awareness of speech-language pathology and audiology. *ASHA* 1981; 23:415–420.
- 11 Lesser R, Hassip S. Knowledge and opinions of speech therapy in teachers, doctors and nurses. *Child Care Health Dev* 1986; 12:235–249.
- 12 Breadner BW, Warr-Leeper GA, Husband SJ. A study of public awareness of speech-language pathology: then and now. *Human Commun Canada* 1989; 11:5–15.
- 13 American Speech-Hearing Association. At a Glance: Public lacks critical awareness of early detection. *The ASHA Leader*, July 2013; 18:21. doi: 10.1044/leader.AAG.18072013.21.
- 14 Mahmoud H, Aljazi A, Alkhamra R. A study of public awareness of speech-language pathology in Amman. *Coll Stud J* 2014; 48:283–298.
- 15 Justice LM. Communication sciences and disorders: an introduction. New Jersey: Pearson Education; 2006.
- 16 Kotby MN. Phoniatrics: a specialty in clinical medical practice. *Ain Shams Med J* 1973; 24:347–354.
- 17 Kotby MN, El-Sady S, Hegazi M. Thirty five years of care of child language in Egypt. *Top Lang Disord* 2010; 30:84–91.
- 18 Richardson D. The rough guide to Egypt (ISBN 1-84353-050-3). London: Rough guides; 2003.
- 19 Boynton PM, Greenhalgh T. Selecting, designing, and developing your questionnaire. *BMJ* 2004; 328:1312–1315.
- 20 Richardson J. Design and conduct a survey. *Compl Ther Med* 2005; 13:47–53.
- 21 Sakai T. Questionnaire design, marketing research and statistical analysis (in Chinese). Taipei: DrSmart Press 2004.
- 22 Clauson GM, Kopatic NJ. Teacher attitudes and knowledge of remedial speech programs. *Lang Speech Hear Serv Sch* 1975; 6:206–211.
- 23 Blackman JA. Early intervention: a global perspective. *Inf Young Children* 2002; 15:11–19.
- 24 Greenwood N, Wright JA, Bithell C. Perceptions of speech and language therapy amongst UK and college students: implications for recruitment. *Int J Lang Commun Disord* 2006; 41:83–94.
- 25 Barr S. Factors influencing environmental attitude and behaviour: a UK case study of household waste management. *Environ Behav* 2007; 39:435–473.
- 26 Glover A, McCormack J, Smith-Tamaray M. Collaboration between teachers and speech and language therapists: services for primary school children with speech, language and communication needs. *Child Lang Teach Ther* 2015; 31:363–382.
- 27 Schaughnessy A, Sanger D. Kindergarten teachers' perceptions of language and literacy development, speech-language pathologists, and language intervention. *Commun Disord Q* 2005; 26:67–110.
- 28 Hughes L. Speech and language therapy and its presentation in the media: the views of journalists and students [MSc dissertation]. Retrieved from ProQuest Dissertations and Theses, Accession UMI Number: U594165; 2007.
- 29 Elman R, Ogar J, Elman S. Aphasia: awareness, advocacy, and activism. *Aphasiology* 2000; 14:455–459.

Appendix

Questionnaire			
Age	Sex		
Profession	Education		
Q1: Are you aware of Delayed Language Development (DLD) disorder in children?			
	Yes	No	
Q2: If yes, what is the source of your knowledge about Delayed Language Development disease in children			
	Yes	No	
(A) The internet			
(B) Media			
(C) Relatives and acquaintances			
(D) Others			
Q3: If you met a parent of a 2-year-old child with delayed language, what would you advice her/him			
	Yes	No	Don't know
(A) Wait and see			
(B) Eat a tongue of a crow			
(C) Consult a doctor			
Q4: Who is the best doctor capable of treating Delayed Language Development in children?			
	Yes	No	Don't know
(A) Pediatricians			
(B) Otolaryngologist			
(C) Neurologist			
(D) Phoniatician			
(E) Others			

Q5: At which age should the parent seek medical advice for her/his child with delayed language			
	Yes	No	Don't know
(A) Two years			
(B) Three years			
(C) Four years			
(D) Older			
Q6: What is the best treatment for Delayed Language Development in children?			
	Yes	No	Don't know
(A) Medication			
(B) Surgery			
(C) Speech and language therapy			
(D) Combined			
(E) Others			
Q7: Do you have a prior knowledge of a child with Delayed Language Development?			
	Yes	No	
Q8: Do you think the society is aware with speech and language disorders and their treatment?			
	Yes	No	
Q9: If no, what is the best way to improve the awareness of speech and language disorders in the society?			