

## Assessment of Mothers' Knowledge and Attitudes towards their Children Suffering from Hearing Impairment

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### ABSTRACT

Hearing impairment can cause significant adverse effects on the acquisition of speech and language, academic achievement as well as social and emotional development. **Aim of the study:** The aim of the study was to assess mothers' knowledge and attitudes towards their children suffering from hearing impairment. **Design:** A descriptive research design was used to conduct the study. **Setting:** This study was carried out in Al-Amal School at Benha city. **Sample:** A convenient sample composed of 110 mothers accompanying their children having hearing impairment were interviewed individually. **Tools of data collection:** Two tools were used: tool (1) interviewing questionnaire that was constructed by the researcher including two parts and tool (2) attitudes to deafness scale. It was adopted from **Cooper et al., (2004)**. **Results:** The results showed that, mean age of the studied mothers was  $37.14 \pm 7.66$  years, nearly half of them have poor knowledge, while 7.3% of them have good knowledge regarding hearing impairment and almost two thirds of them have indifferent attitudes, while 14.5% of them have negative attitudes towards their children having hearing impairment. **Conclusion:** The study concluded that, the studied mothers have poor knowledge and indifferent attitudes towards their children suffering from hearing impairment. **Recommendations:** The study recommended improving mothers' knowledge and attitudes towards hearing impairment through periodical educational programs and similar interventions.

**Key words:** Mothers, knowledge, attitudes, children, hearing impairment, deafness, nursing..

### INTRODUCTION

Hearing impairment (HI) is the commonest birth defect and it is usually difficult to be detected due to its invisible nature. It exists when there is diminished sensitivity to the sounds normally heard. The HI covers all degrees and types of hearing loss (HL), ranging from profound deafness to mild loss. The deaf child is impaired in processing linguistic information through

hearing, with or without amplification (**Hamid et al., 2010 and Benner & Grim, 2013**).

Causes of HI in children are classified as congenital or acquired. Half of all cases of congenital HI in children results from genetic factors. Congenital causes which are not related to genetic factors include perinatal infection such as maternal rubella, herps, cytomegalovirus, toxoplasmosis and syphilis; prenatal asphyxia; Rh incompatibility; anoxia; ototoxic agents; radiation and

preterm birth or low birth weight. Acquired causes of HI include head trauma, otitis media, meningitis, measles, mumps, neonatal intensive care unit noise and environmental noise (Broyles, 2009).

The prevalence of HI in Egypt reaches 16.02%. The HI is a pervasive disability and 75% of those who suffer from it living in the developing countries (Hamid et al., 2010). Annually, in the United States (U.S.), as many as 12,000 neonates are born with HI. The incidence of the HI is 10 per 1,000 children in the U.S., with approximately 1 in 1,000 of these children experiencing profound HI and 3-5 per 1,000 having mild to moderate hearing loss (Broyles, 2009).

Hearing impairment has a significant impact on both the individual and the society. In children, the problem is compounded since normal hearing provides the primary source for acquisition of language, speech and cognitive skills. The HI can cause delay in the development of communication skills, learning problems that result in reduced academic achievement and communication difficulties which often lead to social isolation and poor self-esteem. Also, HI may have an impact on vocational choices (Hamid et al., 2010 and American Speech-Language-Hearing Association (ASHA), 2014).

Preventive strategies of HI include immunization against rubella and the basic childhood diseases, newborn should be tested for HL at birth, annual examination of the ear, avoidance of drugs that have side effects on hearing, foreign objects should not be inserted into the ear canal and protecting against excessive noise exposure (The National Organization for Hearing Research Foundation, 2012). Regardless of the cause of the HL, early intervention can make a difference in the child's ability to communicate. Hearing aids, cochlear implants, communication devices and speech education may enable the child to communicate verbally (Kyle, 2008).

Mothers' adjusting to the child's diagnosis of the HL commonly ascends through a series of emotional stages including shock, recognition, denial, acknowledgement and constructive actions. A period of mourning following the diagnosis is expected. Successful resolution of anger and grief at the diagnosis is important, as otherwise these feelings may be manifested as depression. The depressed mothers are less sensitive to their child's needs and hence are less effective at nurturing language and psychosocial development of their children (Niparko, 2009).

The family needs to investigate home safety measures to protect the child having hearing impairment from the injury. Supervision may be required at all times. The nurse has the most important role in caring for the child suffering from HL through careful assessment to detect the impairment as early as possible. Nursing assessment focuses on the health history, physical examination and hearing tests. The primary goal of nursing care is to provide education and support to the family and the child (Kyle, 2008 and Ward & Hisley, 2009).

#### **AIM OF THE STUDY**

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This study aimed to assess mothers' knowledge and attitudes towards their children suffering from hearing impairment.

#### **RESEARCH QUESTION**

- 1- What is the mothers' knowledge about hearing impairment?
- 2- What are the mothers' attitudes towards their children suffering from hearing impairment?

## SUBJECTS AND METHOD

### Design

A descriptive design was utilized in the current study.

### Setting

This study was carried out in Al-Amal School for Deaf and Hearing-Impaired at Benha City.

### Subjects

A convenient sample composed of 110 mothers regardless their sociodemographic characteristics and having children suffering from hearing impairment, in the age group of 6-12 years and from both genders.

### Tools of data collection

Data were collected by using the following tools:

**1) Interviewing questionnaire:** It was developed by the researcher in an Arabic language after reviewing the related literatures and it included two parts:

**Part 1:** Concerned with the characteristics of the studied children (age, gender, level of education, birth order, family size, family income, type of the hearing impairment, laterality and severity), in addition to family characteristics (age, level of education and occupation).

- Health history of the studied children (onset and cause of the HI, its effect on the child and using of hearing aids) and health history of the studied mothers (consanguineous relation between mother and father, family history of the HI, problems occurred and medication taken during the pregnancy).

**Part 2:** Assessment of mothers' knowledge about HI including definition, types, severity, causes symptoms, prevention, treatment, resulting problems, effects of the HI and the role of the school towards children having hearing impairment.

**Scoring system of mothers' knowledge:** The studied mothers' knowledge was compared with the model key answer, where 2 score was given for completely correct answer, 1 score for incompletely correct answer and 0 score for unknown or incorrect answer. The total level of knowledge was categorized as the following: good level ( $75\% \leq 100\%$ ), average level ( $50\% < 75\%$ ) and poor level ( $< 50\%$ ).

**2) Attitudes to deafness scale:** It was developed by Cooper et al., (2004) to assess attitudes towards deafness. It included 22 statements about deaf people which encompass equality, ability, cultural and linguistic issues. Items were rated on six-point Likert scale.

**Scoring system of mothers' attitudes:** The studied mothers' attitudes were classified into strongly agree (6), moderately agree (5), slightly agree (4), slightly disagree (3), moderately disagree (2), strongly disagree (1). The total score of attitudes was divided into three levels as the following: positive attitudes ( $75\% \leq 100\%$ ), indifferent attitudes ( $50\% < 75\%$ ) and negative attitudes ( $< 50\%$ ).

### Ethical considerations

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The researcher explained the aim of the study to the subjects and secured that all the gathered data are confidential and are used for the research purpose only. The subjects were informed that they were optionally allowed either to participate or not in the study and they have the right to withdraw from the study at any time. An oral consent was taken from the mothers.

**Pilot study**

A pilot study was carried out including 10% of the expected sample size to test the content validity and reliability of the study tools and to estimate the time needed to fill the questionnaire. Participants involved in the pilot study were excluded from the study sample.

**Content validity and reliability of tools**

Content validity of tools was done by 5 experts in the field of pediatric nursing. As regard reliability of tools, cronbach's alpha was .85.

**Field of work**

The studied mothers were interviewed individually using the previous tools in the predetermined setting. The actual field work was carried out over a period of four months (from September 2014 to December 2014). The researcher started to collect the data two days per week. The time needed for each interview ranged from 20-30 minutes. The average number of the interviewed was four mothers per each time depending upon understanding and responses of the mothers.

**Administrative design**

An official letter was issued from the Faculty of Nursing, Benha University to the Administration of the Education in Qalyobia Governorate in order to obtain an approval to carry out the study at the previously mentioned setting. Upon their agreement, the letter of approval was presented to the administrator of the previously mentioned setting to take a permission to enter the school and conduct the study.

**Statistical design**

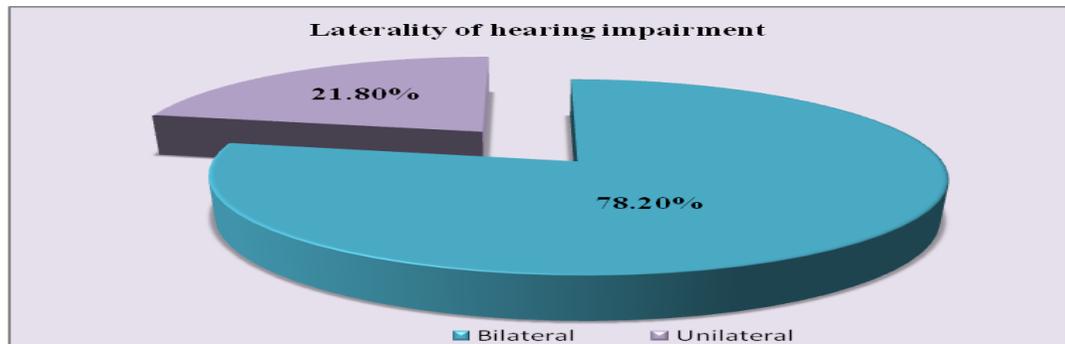
The collected data were organized, tabulated and analyzed using electronic computer and Statistical Package for Social Sciences (SPSS) version 20. Characteristics of the studied children and their mothers were presented in terms of number and percentage distribution. Relation coefficient Chi-square test was used to describe the relation among sociodemographic characteristics, total knowledge and total attitudes scores of the studied mothers.

**RESULTS**

**Table (1): Distribution of the studied children according to their characteristics (No.=110).**

Items	No.	%
<b>Age of children in years</b>		
- 6 < 8	23	20.9
- 8 < 10	35	31.8
- 10 ≤ 12	52	<b>47.3</b>
<b>B ± SD</b>	<b>9.25 ± 1.85</b>	
<b>Gender</b>		
- Male	64	<b>58.2</b>
- Female	46	41.8
<b>Child order in the family</b>		
- First	30	27.3
- Second	33	<b>30.0</b>
- Third	16	14.5
- Other	31	28.2
<b>Family size</b>		
- < 5	38	34.5
- 5 < 7	59	<b>53.6</b>
- 7 ≤ 9	13	11.8
<b>Family income per month</b>		
- Adequate	38	34.5
- Inadequate	72	<b>65.5</b>

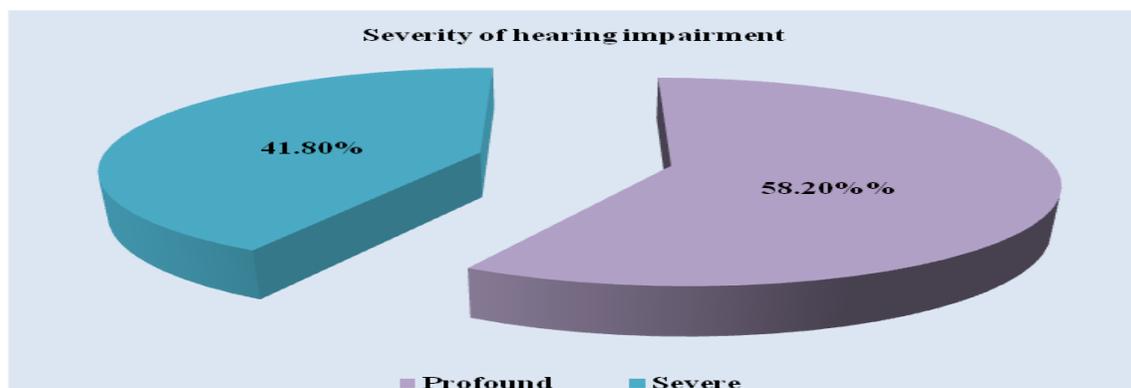
Table (1): shows that, less than half of the studied children (47.3%) are between 10 ≤ 12 years, their mean age is 9.25± 1.85 years and more than half of them (58.2%) are males. In relation to child’s order, it is found that, about one third of them (30.0%) is ranked as the second child. Regarding to family size, the same table illustrates that, nearly half of them (53.6%) have family size of 5 < 7 members. In relation to family income, this table represents that, almost two thirds of them (65.5%) have inadequate income per month.



**Figure (1): Distribution of the studied children according to the laterality of their hearing impairment**

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It is clear from this figure that, less than one quarter of the studied children (21.80%) has unilateral hearing impairment, while more than three quarters of them (78.20%) have bilateral hearing impairment.



**Fig. (2):** Distribution of the studied children according to the severity of their hearing impairment

This figure reveals that, more than one third of the studied children (41.80%) have severe hearing impairment, while more than half of them (58.20%) have profound hearing impairment.

**Table (2):** Distribution of the studied mothers according to their characteristics

Items	Mothers (No.=110)		Fathers*(No.=103)	
	No.	%	No.	%
<b>Age in years</b>				
- 20 < 25	4	3.6	0	0.0
- 25 < 30	20	18.2	1	1.0
- 30 < 35	18	16.4	10	9.7
- 35 ≤ 40	68	<b>61.8</b>	92	<b>89.3</b>
<b>B ± SD</b>	<b>37.14 ± 7.66</b>		<b>42.25 ± 7.05</b>	
<b>Educational Level</b>				
- Illiterate	53	<b>48.2</b>	23	22.3
- Read and Write	2	1.8	8	7.8
- Primary	4	3.6	20	19.4
- Secondary	46	41.8	48	<b>46.6</b>
- University	5	4.5	4	3.9
<b>Job</b>				
- Working	14	12.7	101	<b>98.1</b>
- Not working	96	<b>87.3</b>	2	1.9

**N.B \* Missing values 7 (6.4%).**

**Table (2):** reveals that, 61.8% & 89.3% of the studied mothers and fathers aged 35 ≤ 40 years. In relation to the educational level, it is found that, 48.2% of the studied mothers are illiterate, while 46.6% of the studied fathers received secondary education. Regarding job, this table represents that, most of the studied mothers (87.3%) are not working, while the majority of the studied fathers (98.1%) is working.

**Table (3): Total score of the mothers' knowledge in relation to hearing impairment (No.=110)**

Total score of mothers' knowledge	No.	%
- Good (75% ≤ 100%)	8	7.3
- Average (50% < 75%)	43	39.1
- Poor (< 50%)	59	53.6

**Table (3):** shows that, nearly half of the studied mothers (53.6%) have poor knowledge concerning hearing impairment, while 7.3% of them have good knowledge about hearing impairment.

**Table (4): Total score of mothers' attitudes towards their children suffering from hearing impairment (No.=110)**

Total score of mothers' attitude	No.	%
- Positive (> 75%)	22	20.0
- Indifferent (50%-75%)	72	65.5
- Negative (< 50 %)	16	14.5

**Table (4):** reflects that, almost two thirds of the studied mothers (65.5%) have indifferent attitudes towards their children having hearing impairment, while 14.5% of them have negative attitudes towards their children suffering from hearing impairment.

**Table (5): Relation between total score of mothers' knowledge and their total attitudes towards their children suffering from hearing impairment**

Total knowledge	Total attitudes						Total	X <sup>2</sup>	P
	Negative		Indifferent		Positive				
	No.	%	No.	%	No.	%			
- Good (75% ≤ 100%)	0	0.0	0	0.0	8	36.4	8	60.38	< 0.001
- Average (50% < 75%)	0	0.0	29	40.3	14	63.6	43		
- Poor (< 50%)	16	100.0	43	59.7	0	0.0	59		
<b>Total</b>	<b>16</b>		<b>72</b>		<b>22</b>		<b>110</b>		

**Table (5):** reflects that, there is a highly statistical significance difference between mothers' knowledge and their attitudes towards their children suffering from hearing impairment (P < 0.001). This means that, the more the mothers' knowledge about hearing impairment increases, the more their attitudes towards their children having hearing impairment become positive.

## DISCUSSION

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Findings of this study (table 1) showed that, mean age of the studied children was  $9.25 \pm 1.85$  years and their age ranged from 6-12 years. This results disagreed with the findings of the study done by *Antonopoulou et al., (2012)*, entitled “parenting styles of mothers with deaf or hard-of-hearing children and hearing siblings”, who found that, mean age of the studied children was  $18.00 \pm 2.51$  years and their age ranged from 11-18 years. The difference in the findings may be related to the difference in the study subjects and setting.

Concerning gender of the studied children (table 1), this study represented that, more than half of the studied children were males, while more than one third of them were females. These results were consistent with the findings of the study done by *Hamid et al., (2010)*, entitled “prevalence and pattern of hearing loss in children in household national survey in egypt”, who found that, 59.7% of the studied children were males and 40.3% were females. This may be attributed to the increase of genetic possibility for males than females to have hearing loss.

The present study (table 1) reflected that, about one third of the studied children was ranked as the second child and nearly half of them had family size of  $5 < 7$  members. This results were supported by the findings of the study done by *Yamamah et al., (2011)*, entitled “factors affecting hearing aids efficiency in children with hearing loss at South Sinai”, who revealed that, 48.3% of the studied children had family size more than 5 members. This may indicate that, the child from a family of a big size has less opportunity to receive the appropriate medical and health care.

The current study (table 1) revealed that, almost two thirds of the studied children had inadequate income per month. This result was in an accordance with the study done by

*Frank-Briggs, (2012)*, entitled “childhood hearing loss”, who reported that, the majority of the parents of hearing-impaired children have a low socio-economic status with unskilled occupation. This means that, families with low socio-economic status suffer more from HI because they can not afford the preventive measures needed to avoid HL and they also can not have the ability to buy hearing aids to make the disability manageable.

The current study demonstrated that, more than three quarters of the studied children have bilateral HI (fig. 1) and more than half of them have profound HI (fig. 2). These findings were supported by *Hamid et al., (2010)*, who reflected that, 78.7% of the studied children have bilateral HI. Also, these results agreed with *Yamamah et al., (2011)*, who showed that, 58.6% of the studied children having profound HI. This may reflect that, profound and bilateral HI are common among school-aged children who are deaf.

The present study (table 2) revealed that, less than two thirds of the studied mothers aged  $35 \leq 40$  years and their mean age was  $37.14 \pm 7.66$  years. This result was in an accordance with *Antonopoulou et al., (2012)*, who found that, 60.0% of the studied mothers aged over 40 years old. This may show that, older mothers are more vulnerable to have children suffering from hearing impairment.

The current study (table 2) demonstrated that, less than half of the studied mothers were illiterate. This result was consistent with the study done by *Alkhaier, (2008)*, entitled “quality of life among deaf and hearing-impaired school students in Alexandria”, who reported that, nearly half of mothers were illiterate or just read and write. This means that, the mothers may have low awareness about the disease which may affect their seeking care behaviour.

Additionally, the present study (table 2) revealed that, most of the studied mothers were not working. This result supported by *Alkhaier, (2008)*, who reported that, more than three quarters of the studied mothers were house wives. This may indicate that, the mothers can provide their children with more time and effort needed to give more attention and care to their children.

Regarding mothers' knowledge about HI (table 3), the current study reflected that, nearly half of the studied mothers have poor knowledge about HI. This finding agreed with the findings of the study done by *Eyalati et al., (2013)*, entitled "effects of parental educational level and economic status on the needs of families of hearing-impaired children in the aural rehabilitation program", who stated that, general knowledge of the studied mothers about HI is poor. This could be attributed to lack of the mothers' awareness about the nature of the disease, poor representation of the disability and its effects in mass media and poor counseling systems in rehabilitation centers.

Concerning mothers' attitudes towards their children suffering from HI (table 4), the current study revealed that, almost two thirds of the studied mothers have indifferent attitudes towards their children. This result agreed with the study by *Kumar & Rao, (2015)*, entitled "parental attitudes towards children with hearing impairment", who reported that, mothers exhibit less favourable attitudes towards their children with HI. This could be attributed to mothers' expectation of an ideal child and may also be a reflection of mothers' mourning for the loss of a healthy child.

Concerning the relation between mothers' knowledge and their attitudes (table 5), the results of the current study showed that, there is a highly statistical significant difference between mothers' knowledge and their attitudes towards their children having HI. This finding agreed with *Yamamah et al., (2011)*, who reported that, parents who

understand the nature of the disease can look at the positive aspects of their child in the family. This means that, the mothers' knowledge about HI influences their attitudes towards their children having hearing impairment.

## **CONCLUSION:**

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The study concluded that, the studied mothers have poor knowledge and indifferent attitudes towards their children suffering from hearing impairment. Also, the study illustrated that, there is a highly statistical significant difference between mothers' knowledge and their attitudes towards their children suffering from hearing impairment.

## **RECOMMENDATIONS:**

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- Mothers of children having hearing impairment should be provided with educational programs about hearing impairment and its management.

- Periodical assessment of mothers' knowledge about hearing impairment should be done.

- Children suffering from hearing impairment should have periodical hearing assessment.

- Mass media should play a vital role in increasing awareness about hearing impairment, methods of its prevention and its treatment.

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