



Public Perspectives and Communication Strategies towards Hearing Aids Users: A Cross-Sectional Study in Egypt

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ABSTRACT

Abstract

Background: The quality of life of hearing-impaired individuals can be greatly improved by hearing aids. However, there is a negative stigma about hearing aids for various reasons including social issues. **Aim:** To assess the public perspectives and awareness of basic communication strategies towards hearing aids users among the Egyptian population. **Methods:** A cross-sectional study was performed on an Egyptian community population using online questionnaire and convenience sampling. Chi-square test was used to examine the association of public perspectives and communication strategies towards hearing aids users by demographic and personal characteristics. Logistic regression analysis model was used to detect independent predictors of good communication strategies intended to be practiced with hearing aids users. **Results:** A total 384 individuals participated in this study and 70.8% of them were females. Approximately 29.7% and 46.1% of the studied sample had average and good perspectives towards hearing aids users while 27.1% and 49% of them had average and good awareness about communication strategies towards hearing aids users. Logistic regression analysis showed that younger aged participants, workers in the medical sector, and those who did not have a close person wearing hearing aids were significant independent predictors of good communication strategies towards hearing aids users. **Conclusion:** This study revealed good public perspectives and awareness of communication strategies towards hearing aids users, however, it is insufficient. Hence, raising the awareness of public about the importance of hearing aids for hearing-impaired individuals and basic communication strategies towards hearing aids users are recommended.

INTRODUCTION

Hearing loss accounts for the fourth most common cause of disability all over the world. Approximately 5% of the people will have some degree of hearing loss. WHO stated that by 2050 nearly 2.5 billion people are expected to have some degree of hearing loss and about 700

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million will require a hearing rehabilitation program.¹ Wearing hearing aids could improve the overall quality of life, can overcome the impacts of hearing loss, and allow normal school achievement.²⁻³ Despite the benefits of hearing aids, the high prevalence of people suffering from hearing loss, and the high improvement of hearing aid technology, the percentage of hearing aids users remains small.⁴⁻⁵ In the

European Union, about 22.6 million hearing-impaired subjects live with untreated, disabling hearing loss.⁶ Many studies reported the

Table (1): Demographic and Personal Characteristics of the Studied Sample

The Characteristics	No. (%) [Total No.= 384]
Age in years	
• ≤ 22	138 (35.9)
• 23-37	134 (34.9)
• ≥ 38	112 (29.2)
Gender	
• Male	112 (29.2)
• Female	272 (70.8)
Education	
• High school	81 (21.1)
• University graduate	164 (42.7)
• Postgraduate	139 (36.2)
Occupation	
• Not working	43 (11.2)
• Students	117 (30.5)
• Medical sector	178 (46.4)
• Other sectors	46 (12.0)
Having a close person wearing hearing aids	
• No	277 (72.1)
• Yes	107 (27.9)

prevalence of people with hearing loss who wear hearing aids ranged between 6% and 41%.^{4-5,7-9} A study reported that the percentage of people who did not use their hearing aids was 4.7% while the percentage of irregular hearing aid users was 24%.¹⁰ Many factors could explain the reasons for the unwillingness of hearing aids use including cost, comfort, lack of benefit, other people's experiences, and denial of hearing loss. However, one of the most important and significant barriers to overcome is the stigma surrounding hearing impairment and using hearing aids.¹¹⁻¹³

Social issues have a considerable impact on people's decision-making in general. People suffering from hearing loss are affected by many people in the community as their colleagues, classmates, friends, and health professional when determining the rehabilitation methods.¹⁴⁻¹⁵ The biggest issue with children wearing hearing aids is what their friends and classmates think about them. A previous study was conducted on school children reported that most children favored the canal hearing aid because it is small, less visible, and their friends cannot observe it. Some students who wear hearing aids report being bullied, and their classmates may make

fun of them for wearing their aids. Children who wear behind-the-ear hearing aids avoid wearing them in school and hide them from their friends to avoid being bullied.¹⁶ The visible hearing aid is a source of stigma linked with hearing aids.^{13, 17}

To reduce the rejection of hearing-impaired people towards the hearing aid, public view towards disabled people must be improved, and know-how they can communicate with those people. To achieve effective communication, all people involved in a conversation must do efforts even when the hearing-impaired individuals use their hearing aid. All people who deal with the hearing-impaired individual must have active listening strategies, appropriate communication skills, and know-how they can deal with them.¹⁸

Many studies reported stigma associated with hearing aids but till now no study discussed the public view towards hearing aid users. Many factors may affect society's attitude towards disabled people such as culture, education, age, sex, and previous experience. Therefore, this study aim is to assess the public perspectives towards hearing aids users among the Egyptian population and evaluate the public awareness of basic communication strategies for hearing aids users among the Egyptian population.

METHOD

A cross-sectional study was performed on an Egyptian community population over two months (November- December 2021).

Through the EPI online calculator, a sample of 384 Egyptian adults was drawn from an infinite population and based on the prevalence of 50%. A convenience sampling was used to recruit the participants who filled out a self-administered online questionnaire using Google forms. The questionnaire was distributed through social media platforms.

Egyptian adults aged eighteen and more who do not suffer hearing loss or wear hearing aids were included.

Data collection tools: The researchers prepared a structured questionnaire, written in the Arabic language, reviewed, and approved by experts. The content validity of the questionnaire was evaluated by 5 specialists, and the scale validity index/average was 1. The questionnaire was then updated based on their comments and suggestions. A pilot study was performed before data collection, 20 persons were asked to answer the questionnaire for checking the

Table (2): Public Perspectives of the Studied Sample towards Hearing Aids Users

Do you agree:	Poor No. (%)	Average No. (%)	Good No. (%)
A] Perspectives towards hearing aids			
Wearing hearing aids causes embarrassment.	94 (24.5)	41 (10.7)	249 (64.8)
Wearing hearing aids is similar to eyeglasses.	48 (12.5)	62 (16.1)	274 (71.4)
Wearing hidden hearing aids is better.	61 (15.9)	78 (20.3)	245 (63.8)
Wear hearing aids if you are exposed to hearing loss.	51 (13.3)	55 (14.3)	278 (72.4)
B] Perspectives towards hearing aids users			
Wearing hearing aids enables children to enroll in mainstream schools.	22 (5.7)	42 (10.9)	320 (83.3)
Presence of children with hearing aids in mainstream schools has a negative impact on their colleges	26 (6.8)	31 (8.1)	327 (85.2)
Wearing hearing aids helps in excellence in education.	23 (6.0)	59 (15.4)	302 (78.6)
Wearing hearing aids allows the work in all fields.	34 (8.9)	41 (10.7)	309 (80.5)
To employ (hire) someone wearing hearing aids.	11 (2.9)	20 (5.2)	353 (91.9)
To marry someone wearing hearing aids.	27 (7.0)	80 (20.8)	277 (72.1)
Wearing hearing aids leads to exposure to bullying.	55 (14.3)	77 (20.1)	252 (65.6)
The Median (Quartile Range) of the total score		45 (42 - 47)	

applicability and clarity of the questionnaire then modifications were made accordingly, and these persons were excluded from the study group. *The research tool was composed of three sections:* The first section included data about participants' sociodemographic characteristics, diagnosed hearing impairment or wearing hearing aids, and having a closed person with hearing impairment or hearing aids. The second section consisted of 11 items assessing the public perspectives towards hearing aids' users that were categorized into two domains and based on a 5-point Likert scale. All items were scored as follows: strongly disagree= 1, disagree= 2, neither agree nor disagree = 3, agree= 4, or strongly agree= 5, except questions 1, and 6 were scored oppositely, with an overall score of 55. The third section evaluated the basic communication strategies intended to be practiced with hearing aids' users through 9 items that were categorized into two domains and based on a 5-point Likert scale with the range of responses, as follows: strongly disagree= 1, disagree= 2, neither agree nor disagree = 3, agree= 4, or strongly agree= 5, except questions 2, 3, 5, and 8 were scored oppositely, with an overall score of 45. The Public perspectives and basic communication strategies were interpreted as poor, average (neutral), and good by cut-off points that were taken at Quartile 1 (Q₁) and Quartile 3 (Q₃) of the data for each component as well as the overall score.

Data management: After data collection, data were coded, entered, analysed, and presented using a statistical package of social sciences SPSS version 24.¹⁹ Data was presented in descriptive tables and

figures as numbers and percentages. The Chi-square test was calculated to measure the association of public perspectives and communication strategies towards hearing aids users with their demographic and personal characteristics. P-value was interpreted to be significant at ≤ 0.05 and highly significant at ≤ 0.01 . Multinomial logistic regression analysis was carried out to determine the independent predictors of good communication strategies intended to be practiced with hearing aids users.

RESULTS

A total 384 community subjects participated in this study and 70.8% of them were females. Most of the sample were university-graduates, and post-graduates (42.7%, and 36.2%, respectively) and were medical sector workers and university students (46.4%, and 30.5%, respectively) while 27.9% of all participants had a closed person wearing hearing aids (Table 1). Regarding the public perspectives towards hearing aids users, table 2 shows that most of the studied sample agreed that wearing hearing aids enables children to enroll in mainstream schools (83.3%), does not have negative impacts on their colleges (85.2%), helps in excellence in education (78.6%), allows the work in all fields (80.5%), and accepted to hire hearing aids users with the following percentages (91.9%). 64.8%, 71.4%, and 63.8% of the participants in this study agreed that hearing aids do not cause embarrassment, are like eyeglasses, and are

Table (3): Communication Strategies Intended to Be Practiced with Hearing Aids Users

When you talk with hearing aids user you should:	Poor No. (%)	Average No. (%)	Good No. (%)
A] Visual and verbal communication strategies			
Look directly towards his/her face.	47 (12.2)	49 (12.8)	288 (75.0)
Look at hearing aids involuntary from time to time.	39 (10.2)	42 (10.9)	303 (78.9)
Raise your voice (loud voice) to keep his attention.	84 (21.9)	66 (17.2)	234 (60.9)
Speak clearly and slightly slower than normal.	79 (20.6)	43 (11.2)	262 (68.2)
Suddenly change the topic in conversation without paying his/her attention	171 (44.5)	87 (22.7)	126 (32.8)
B] Physical communication strategies			
Try to set close to him/her (less than two meters).	93 (24.2)	83 (21.6)	208 (54.2)
Use body or sign language in conversation.	141 (36.7)	97 (25.3)	146 (38.0)
Whenever possible use touch to pay attention.	119 (31.0)	116 (30.2)	149 (38.8)
Show the lips' movement while speaking.	101 (26.3)	87 (22.7)	196 (51.0)
The Median (Quartile Range) of the total score	31 (29 - 34)		

Table (4): Relation between the Demographic and Personal Factors of Studied Sample and Their Perspectives and Communication Strategies towards Hearing Aids Users

Factors	Public Perspectives				Communication Strategies									
	Poor No. (%)	Average No. (%)	Good No. (%)	P value	Poor No. (%)	Average No. (%)	Good No. (%)	P value						
Age in years														
• ≤ 22	42 (30.4)	22 (15.9)	74 (53.6)	< 0.001	43 (31.2)	27 (19.5)	68 (49.3)	0.007						
• 23-37	25 (18.7)	62 (46.3)	47 (35.1)		26 (19.4)	48 (36.8)	60 (44.8)							
• ≥ 38	26 (23.2)	30 (26.8)	56 (50.0)		23 (20.5)	29 (25.9)	60 (53.6)							
Gender														
• Male	38 (33.9)	22 (19.6)	52 (46.4)	0.003	31 (27.7)	23 (20.5)	58 (51.8)	0.01						
• Female	55 (20.2)	92 (33.8)	125 (46.0)		61 (22.4)	81 (29.8)	130 (47.8)							
Education														
• High school	14 (17.3)	22 (27.2)	45 (55.6)	0.11	15 (18.5)	17 (21.0)	49 (60.5)	0.12						
• University graduate									44 (26.8)	56 (34.1)	64 (39.0)	41 (25.0)	42 (25.6)	81 (49.4)
• Postgraduate									35 (25.2)	36 (25.9)	68 (48.9)	36 (25.9)	45 (32.4)	58 (51.8)
Occupation														
• Not working	3 (7.0)	22 (51.2)	18 (41.9)	< 0.001	17 (39.5)	5 (11.6)	21 (48.8)	< 0.001						
• Students	26 (22.2)	38 (32.5)	53 (45.3)		26 (22.2)	28 (23.9)	63 (53.8)							
• Medical sector	44 (24.7)	43 (24.2)	91 (51.1)		29 (16.3)	59 (33.1)	90 (50.6)							
• Other sectors	20 (43.5)	11 (23.9)	15 (32.6)		20 (43.5)	12 (26.1)	14 (30.4)							
Having a close person wearing hearing aids														
• No	57 (20.6)	92 (33.2)	128 (46.2)	0.008	55 (19.9)	81 (29.2)	141 (50.9)	0.009						
• Yes	36 (33.6)	22 (20.6)	49 (58.8)		37 (34.6)	23 (21.5)	47 (43.9)							

better to be hidden (canal hearing aid) respectively. About 72% of the sample accept to wear hearing aids if they are exposed to hearing loss and to marry hearing aids users, however, 65.6% of them agreed that hearing aids users are exposed to bullying (Table 2).

Table 3 shows good awareness of communication strategies with hearing aids users regarding direct looking towards their face (75%), avoiding looking at hearing aids from time to time (78.9%), not using a loud voice (60.9%), and speaking clearly and slower than normal with the following percentages (68.2%). 54.2% and 51% of participants revealed they should set close to hearing aids users and show the movement of their lips while speaking.

Figure 1 indicates that 29.7% and 46.1% of the studied sample had average and good perspectives towards hearing aids users, and 27.1% and 49% of them had average and good awareness about communication strategies with hearing aids users. Regarding the association of public perspectives and communication strategies towards hearing aids users with the studied sample's characteristics, Table 4 shows that the good public perspectives and communication strategies towards hearing aids users were significantly associated with female participants, younger aged participants, medical sector workers, and those not having a close person (relative, friend, or college) wearing hearing

Table (5): Multinomial Logistic Regression Analysis of Predictor Variables on Communication Strategies Intended to Be Practiced with Hearing Aids Users

Effect	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	87.623	0.000	0	.
Age (< 38)	109.093	21.471	4	< 0.001
Gender (Female)	87.767	0.144	1	0.704
Education (Postgraduate)	88.696	1.073	2	0.585
Occupation (Medical sector)	109.833	22.210	3	< 0.001
Having a close person wearing hearing aids (No)	104.536	16.913	1	< 0.001

The reference category is good communication strategies

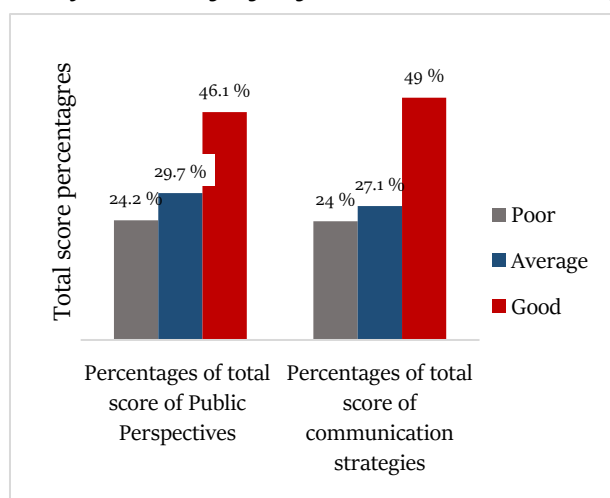


Figure (1): Percentages of Total Scores of Public Perspectives and Communication Strategies towards Hearing Aids Users

aids. Logistic regression analysis presented that the younger aged participants, workers in the medical sector, and those not having a close person wearing hearing aids were the significant independent predictors of the good communication strategies towards hearing aids users, while other factors were presented as insignificant independent variables (Table 5).

DISCUSSION

Despite widespread hearing disorders all over the world and their consequences on hearing-impaired individuals, their caregivers, their families, and the community, only a minority uses hearing aids.^{4-5, 20} The decision of hearing-impaired individuals to wear hearing aids is highly affected by their peers’ perception of their appearance. The current study was a cross-sectional study which was conducted in Egypt upon 384 individuals of different ages, levels of education, and occupations. The participants filled out a questionnaire assessing their perspectives towards hearing aids users and

evaluating their awareness of basic communication strategies with hearing aids users. The females were the predominant participants (70.8 %). 72.1% of participants were not in direct relation with hearing aids users.

In the present study, 29.7% and 46.1% of the studied sample had an overall average and good perspectives towards hearing aids users respectively. The majority of the participants had good responses in different items assessing their perspective towards wearing hearing aids. They thought that hearing aids can improve the quality of life by helping the student to engage in mainstream school (83.3%), improving their level of education (78.6%), and allowing them to work in different fields (80.5%). These findings were in agreement with the study that assessed different aspects that regrade the perception of normal individuals towards their friends who use hearing aids.²¹ This study concluded that normal individuals see hearing-aid-wearing counterparts with some stigma and bias. However, there were no significant differences indicated in the aspects of intelligence, achievement, enthusiasm, level of education, self-confidence, and friendliness. All the attributes of disability, body image, and attractiveness had significant negative evaluations from the participants in the study.²¹

The European Hearing Instrument Manufacturers Association (EHIMA) conducted surveys in three different countries, France, Germany, and the United Kingdom, in 2009, 2012, and 2015.²² These surveys revealed that the percentages of hearing-impaired individuals who feel embarrassed to wear hearing aids were steadily decreasing.²² In the current study, 64.8 % of the participants agreed that wearing hearing aids do not cause embarrassment, and 71.4% of them saw hearing aids are similar to

eyeglasses. These results were in contrast with the findings of a study that assessed the social attitude of hearing aids in 4 different countries and stated that there was a negative attitude towards hearing aids, and this may explain why hearing-impaired individuals refuse to wear their hearing aids.²³⁻²⁴ Also, a previous study measured the perception of hearing loss and the use of hearing aids among healthy women of different ages.²⁵ This study reported negative attitudes and perceptions towards hearing loss and wearing hearing aids and stated that the younger females perceived a higher feeling of stigma. However, the stigma associated with hearing aids use was less than the stigma associated with hearing loss, this could be reflecting the positive attitude towards using hearing loss management and wearing hearing aids.²⁵

In the present study, 63.8% of the participants preferred the canal hearing aids. This finding confirmed that the cosmetics of hearing aids have an important role in stigma and the size and visibility of the hearing aid contributes to the hearing aid effect. A previous study on the stigma associated with different hearing aid styles concluded that most users preferred the smaller and invisible hearing aid, also, they hope the development of new designs for the hearing aids that appear as a jewel to overcome their negative feelings.²⁶⁻²⁷ In addition, a recent study stated the importance of the selection of suitable hearing aids by audiologists that matched the degree of hearing loss and provide the patients' satisfaction.²⁸

Despite the good perception of the current study towards hearing aid users, 65.6% of the participants reported that children wearing hearing aids could be exposed to bullying which is considered one of the main factors that prevent children from wearing their hearing aid. This result was consistent with the result of a previous study revealed that the hearing aid impact can be shown in children as early as six years old and the outcomes of this study implied that children who wore hearing aids were perceived as being less physically proficient and socially accepted by their classmates with normal hearing.²⁹ A previous study reported the presence of hearing aids effect in children, teenagers, and adults.³⁰⁻³¹ In contrast, a previous study has found no link between public attitudes towards hearing aid, and the unwillingness of hearing aids use explaining that individuals may be aware of the different health benefits of healthy behavior but may not always be

followed, suggesting attitudes are not always predictive of behavior.³²

The standards of Practice of the American Academy of Audiology required audiologists to create and use language and written materials that are appropriate for health literacy levels.³³ the audiologists and other health care workers must be aware of various communication aspects ensuring effective communication and comprehension with people with hearing loss and their families. In addition, self-efficacy and knowledge of hearing terminology are likely to improve with practice. A new hearing aid user requires a simplified explanation compared to someone who has worn hearing aids for a long time.³³ There was a significant association between good communication strategies and female participants, younger aged participants, medical sector workers, and those not having a close person wearing hearing aids in the current study. Moreover, logistic regression analysis confirmed that the younger aged participants, workers in the medical sector, and those who were not having a close person wearing hearing aids were the significant independent predictors of the good communication strategies towards hearing aids users. These findings can be explained by that the internet and social media which had developed rapidly since 1990 played an important role in increasing awareness and education of young people in several aspects including proper dealing with handicapped persons.³⁴⁻³⁵ Furthermore, the workers in health fields have previous knowledge and experience in dealing and communicating with hearing aid users. Additionally, it was reported that the elderly people with lower levels of education have a low level of access to the internet which has a great role in decreasing their awareness and health literacy.^{34, 36}

People with different disabilities such as hearing loss will gain skills and abilities because of their active participation. Simultaneously, people with and without disabilities working together can often encourage changes in attitudes and understanding of persons with disabilities' talents, contributions, and aspirations. Additionally, the confidence and skills that result from the development of true partnerships often empower and assist people with disabilities.¹⁸

Finally, this study attempted to confirm the good public perspectives and communication strategies towards hearing loss and hearing aid users and to approve that the stigma associated with hearing aids

started to vanish among different categories of populations.

CONCLUSION AND RECOMMENDATIONS

This study was performed to assess the public perspectives towards hearing aids users and to evaluate the communication strategies intended to be practiced with hearing aids users among the Egyptian population. It revealed good public perspectives and communication strategies towards hearing aids users, however, it is insufficient and can be improved. Hence, raising the awareness of the public about the importance of hearing aids for hearing-impaired individuals as well as improving their knowledge about basic communication strategies in dealing with hearing aids users is very important to overcome the stigma associated with hearing aids.

Ethical Considerations

An approval was obtained from Zagazig University Institutional Review Board (IRB: 9222/10-11-2021) before. The drive for the study was clarified on the cover page of the research tool. Before data collection, verbal consent was taken from participants and their identities were kept anonymous. The participants were guaranteed the confidentiality of their data and that it will be used for the research only.

Limitations of the study: The present study had specific limitations that may lead to difficulty in the generalization of the study findings to Egyptian population. Selection bias may have been encountered in the study population as a result of the use of the online survey, that showed some sample characteristics different from those expected by random sample. For example, the majority of our study population were females, university and postgraduates, and medical sector workers and university students that are probably different from the Egyptian population.

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