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Visual and Hearing Rehabilitation Program on Emotional, Social Adjustment and Vision-related Quality of Life among Elderly, Egypt

Esteer Ibrahim Ghayth Basali [1], Soher Ahmed Awad [2], Tayser Bauomei Fahmei [3], Hanaa Moukhtar Ibrahim [2]

[1.] Geriatric Nursing Department, Faculty of Nursing, Sohag University, Egypt.
[2] Gerontological Nursing Department, Faculty of Nursing, Assiut University, Egypt.
[3.] Gerontological Nursing, Borg AL Arab Technological University, Alexandria, Egypt.
E-mail: soher@aun.edu.eg , Tel: 01067145439

Abstract

Sensory impairments are common among older adults and are considered some of the most challenging health conditions affecting this population. **Aim:** Determine the effect of rehabilitation program for sensory impairment on the elderly emotional and social adjustment. **Subjects and methodology**: A quasi-experimental design was employed. The study was conducted in ophthalmology outpatient clinics and hearing and speech centers. A purposive sample of 100 elderly individuals participated in the study. Three tools were used: the Arabic version of the National Eye Institute Visual Function Questionnaire (ARB-VFQ-25), the Hearing Handicap Inventory for the Elderly (HHIE), and a structured socio-demographic and clinical interview schedule.

Results: Before the program, 43.5% of participants had a moderate to severe hearing handicap. Following the program, 59% had no hearing handicap. Additionally, 40.7% of participants had poor emotional and social adjustment related to visual function in the pre-test, compared to 46.29% who reported good adjustment after the intervention. These changes were statistically significant ($P < 0.023$). **Conclusion:** Visual and hearing rehabilitation program improves the elderly social, emotional adjustments and vision related quality of life. **Recommendations:** Establishing a specialized management plan for sensory impaired elderly about sensory enhancement, promoting adaptation, and increasing functioning.

Keywords: Elderly, Rehabilitation program, Vision and hearing impairment.

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Introduction:

Aging is a multifaceted process that impacts individuals in various ways, including physical, psychological, and social changes. By the late 2070s, the global population aged 65 and older is forecasted to reach 2.2 billion. Additionally, by the mid-2030s, the number of people aged 80 and above is expected to rise to 265 million **[1].** In Egypt, the elderly population (60 and older) has reached 9.3 million, accounting for 8.8% of the total population **[2].**

Chronic diseases such as diabetes and hypertension are prevalent among the elderly and significantly contribute to sensory impairments. For instance, diabetic

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retinopathy and hypertensive retinopathy are leading causes of vision loss, while microvascular complications from these diseases can also affect hearing. Moreover; multimorbidity among old age population, greater chance of developing disorders of the sense organs, and aging-related changes in the eyes and ears make older people over 80 who get home care more susceptible to various problems in addition to lowering their eyesight and hearing **[3]**

It is difficult for older persons to deal with hearing and vision loss, which can also have an impact on health-related outcomes like a higher rate of cognitive decline, a higher risk of falls, social disengagement, depression, and a lower quality of life [4]**.** Additionally, the effects of vision and hearing loss can have a detrimental impact on social engagement possibilities, mental and physical health, and overall functioning. **[5].**

Sensory rehabilitation has recommended an annual hearing and vision exam as the best practice, followed by a referral to relevant medical specialists or device suppliers if necessary, and nursing monitoring for proper device use **[6].** A self-management program facilitated by a gerontological nurse was successful in enabling older persons with sensory impairments to handle the instrumental activities of daily living; however, no differences were observed when addressing the other three participation domains. Self-management was found to be useful in handling real-world issues, but not for issues that call for other people's behavioral adjustments [7].

Crossponding, they play an important role in assisting the elderly in avoiding sensory disorders and the associated morbidity and mortality by providing services such as assessing risk, providing information, discussing available testing options, and providing appropriate supportive counseling **[3]**.

Significance of the study:

Approximately 2.2 billion people worldwide suffer from distant vision impairment (VI), according to a WHO 2024 report. Of these situations, about half have been avoided or are still pending resolution. It has been determined that cataracts and untreated refractive error are the main causes of VI and blindness. The South Indian state of Andhra Pradesh had a 14.3% prevalence of VI in adults over 40, whereas the East Delhi district had an 11.4% prevalence in the same age group. The prevalence of vision impairment in Africa is not always well-documented. Among Ghanaian farmers, 22.7% were over 40. There were 38.8% of adults in Upper Egypt who were over 40. Therefore, the WHO suggested taking action for

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"Vision 2020" during the course of the following ten years, as over 90% of people with vision impairments in these situations live in developing countries **[8].**

Nearly all persons over 85 and roughly two-thirds of those over 71 have hearing loss, yet just a small percentage wear hearing aids, according to **[9].** Higher than earlier estimates, these robust estimates come from a nationally representative survey that oversamples older persons. They also offer updated metrics for resource planning pertaining to current and upcoming hearing policy efforts.

As a result of an increase the vision and hearing impairment among the elderly because of age-related changes, multimorbidity, and other risk factors and the lack of care provided for the sensory enhancement of the elderly. So, the present study has been conducted to clarify the effect of visual and hearing rehabilitation programs on elders' emotional and social adjustment and vision-related quality of life.

Research objectives:

Determine the effect of visual and hearing rehabilitation program on elders' emotional, social adjustment, and vision-related quality of life.

Research Hypotheses:

- **Hypotheses:** Visual and hearing rehabilitation program have a positive effect on elders' emotional, social adjustment, and vision-related quality of life**.**
- **Null Hypotheses:** Visual and hearing rehabilitation program have no effect on elders' emotional, social adjustment, and vision-related quality of life.

Patients and Method

Research design, participants, and setting:

A quasi-experimental research design was used in this study to investigate the effect of rehabilitation program on sensory impairment among the elderly. One hundred (100) participants were purposefully recruited from the ophthalmologic outpatient clinics and the hearing/speech center affiliated with the general Assiut university hospitals which provide services to the residents of Assiut City and the nearby towns in the Assiut Governorate. Eligibility requirements for the study included being at least 60 years old, having a hearing handicap inventory for the elderly (HHIE) score ranging from either mild to moderate (17-42) or significant (≥43) handicapped or very poor to good (0-80) on the Arabic version of the National

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Eye Institution Visual Function Questionnaires Tool (ARB-VFQ-25), being able to communicate, and being willing to participate.

Tools of the research:

This current research was composed of three tools:

First, the researchers reviewed pertinent literature to create ***clinical and sociodemographic data for the elderly. Tool I***: it has two components: Social and demographic information, including address, occupation, monthly income, age, sex, marital status, and educational attainment, this is covered in ***Section 1***. ***Section 2:*** Clinical information, including medical diagnoses, visual and auditory issues, and smoking history

Tool II&III: In addition to the first tool, the authors employed two standardized instruments: ***the Arabic version of the National Eye Institution Visual Function Questionnaires Tool (ARB-VFQ-25) and the Hearing Handicap Inventory for the Elderly (HHIE).*** To evaluate the impact of hearing loss on older adults' emotional and social adjustment, the HHIE was developed in 1980. HHIE is divided into two subscales: Hearing impairment's emotional effects are examined by a 13-item subscale, while its social and situational implications are examined by a 12-item subscale [10].

For each question of HHIE, there are three responses in which four points are given to the answer “yes”, two points to the answer “sometimes”, and zero points to the answer “no”. The answers to all 25 questions are added together to determine the patient's level of handicap, resulting in a final score between 0 and 100, with 0–16 for no handicap, 17–42 for mild to moderate disability, and > 43 for significant handicap. To carry out this investigation, the researchers employed the scale's Arabic version. A panel of specialists in gerontological nursing evaluated the tool's content validity after translating the English version into Arabic and making the required adjustments. The reported Cronbach's alpha (internal consistency reliability) was 0.87. A test-retest reliability of 0.84 (P<.0001) was reported.

Additionally, the ARB-VFQ-25 was used to assess the impact of visual impairment and visual symptoms on task-oriented domains relevant to the everyday visual function of the elderly as well as quality-of-life factors like emotional well-being and social functioning. It was altered by Abd El-Fattah and colleagues in 2014. The reliability of the tool was 0.70 to 0.91, and its validity was 0.60 to 0.80.

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The 25 questions on the ARB-VFQ-25 are all focused on vision. Twelve subscales that are focused on vision are produced, including the global vision rating, the challenges of near and far activities, the social functioning limitation, and the rule limitation. The ARB-VFQ-25 summary score, which was part of the original tool, was between 0 and 100 (100 being the best, and 0 being the worst). There were five categories used to score the scores: very poor, poor, neither poor, and neither poor [4].

Method:

1. **Administrative design:**

Following an explanation of the study's goals, a formal letter asking permission to conduct the research was delivered to the chief manager of the main Assiut University hospitals.

Pilot study:

It was performed on ten elderly people with sensory impairments. A pilot study was carried out before data collecting started in order to assess the tools' viability and make any required modifications. The tools were working perfectly. The number of old people was excluded from the study.

Ethical Considerations:

The ethical committee of Assiut University's nursing department authorized the research proposal in October 2022 (4560037). The study's application posed no risks to the research subjects. The study adhered to standard ethical guidelines for clinical research. Patients who agreed to participate in the study gave their informed consent after being fully informed about its nature and goals. There was assurance of anonymity and confidentiality. At any point, the subject of the study was free to decline participation or to leave the study without explanation. When gathering data, patient privacy was taken into consideration.

2. **Study Strategy**:

The research was carried out through assessment, planning, implementation, and evaluation phases.

a) **Assessment phase:**

The researchers gave a brief introduction to each participant and explained the nature and goal of the study during the first meeting. It was approved by the participants. The investigators conducted individual interviews with each participant in order to collect pertinent data for the study using **Tool I**: elderly' socio-demographic and clinical data, **Tool II**: Hearing Handicap Inventory for

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the Elderly, and **Tool III**: Arabic Version of National Eye Institution Visual Function Questionnaires Tool (ARB-VFQ-25).

b) Planning phase:

The arrangements for conducting the rehabilitation program were made during this phase.

Description of the rehabilitation program:

After a thorough review of the related literature, the researchers prepared the nursing rehabilitation interventions which include summarized simple information about vision and hearing impairment among older adults and its most relevant rehabilitation program. It was designed in simple Arabic language in different forms such as; booklets, posters, and a clear audio recording to help the participants understand the content based on their type and degree of sensory impairment.

The rehabilitation program included 2 parts:

1-Theoretical part:

It includes knowledge about common vision and hearing problems among the elderly, age-related changes, causes &risk factors, types of assistive or compensatory devices, and the effect of vision and hearing impairments on elders' emotional, and social well-being.

2-Practical part:

It includes teaching self-management tasks related to medical management of hearing and vision impairments, instructions to cope with hearing and vision impairments, the care of assistive or compensatory devices, nutritional recommendations for elders with hearing or vision impairments, and nursing measures to enhance communication, emotional and social wellbeing of elders with vision and hearing impairments.

c) Implementation phase:

Before the first session started, senior participants had an orientation that explained the rehabilitation program and its goal. Every meeting began with a review of the previous session's contents and the goals for the current one. Data collection and training session implementation took place over the course of nine months, from early January 2023 to late September 2023. The researchers were on hand to respond to inquiries and provide more details.

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For one hundred (100) senior citizens, the rehabilitation program sessions and posttest were administered over a nine-month period. Depending on their availability and readiness for sessions, the patients were split up into small groups. Each group included two to three senior citizens with similar sensory impairments (visual or hearing).

Four groups were met per week and the program session was implemented per day for one visual or hearing-impaired elderly group. The rehabilitation program for each group was implemented in four sessions through two sessions per week for two consecutive weeks, each session took 30:40 minutes according to the elderly' responses.

The first session: an overview of the most common sensory age-related changes affecting elderly vision and hearing and their risk factors.

The second session: a discussion on the elderly subjective experience with age-related vision and hearing impairment as well as, their personal emotional and social adaptation techniques to overcome the burden of these impairments.

The Third session: a demonstration of nursing interventions for the care of vision and hearing assistive or compensatory devices used.

The fourth session: a demonstration of nursing interventions to overcome the burden of age-related vision and hearing impairment such as; measures to encourage carrying out routine daily activities, sustain communication with others, and support older adults' social participation and emotional adaptation.

d) Evaluation phase:

After implementing the rehabilitation program, a post-test was done three months after the first session of intervention using the second and third tools to determine the effect of the rehabilitation program in improving the emotional, social adjustment, and vision-related quality of life among elders with visual or hearing impairments.

Statistical analysis:

Following their acquisition, the data was examined, coded, examined, tabulated, and ready for computer input. Descriptive statistics, such as percentages, means, and standard deviations, were calculated using Excel 2010 and the SPSS software version 20. Using chi-square, categorical variables and variations in frequency distribution between groups were compared. The P-value was deemed significant if it was less than 0.05.

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Results:

Table (1): Number and percentage distribution of the studied elderly regarding Socio-demographic Data, (N=100)

Demographic data	No.	%
Age:		
Range.	60 – 80	
Mean ± SD	67.98 ± 4.69	
Gender:		
Male.	55	55.0
Female.	45	45.0
Residence:		
Rural.	79	79.0
Urban.	21	21.0
Marital status:		
Married.	73	73.0
Divorced.	3	3.0
Widowed.	22	22.0
Single.	2	2.0
Education level:		
Illiterate.	51	51.0
basic education.	30	30.0
Secondary education.	12	21.0
University education.	7	7.0
Occupation:		
Working.	23	23.0
Not working.	77	77.0
Living arrangement:		
Alone.	20	20.0
With spouse only.	35	35.0
With family.	45	45.0

Table (1): Cleared that the mean age of the studied elderly was 67.78±4.69, regarding gender and residence, it can be noticed from this table that 55% of the studied elderly were male and 79% of them come from rural areas. As for marital

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status, this table shows that 73% of the studied elderly were married. Additionally, this table illustrates that 55% of the studied elderly were illiterates.

Table (2): Distribution of The Studied Elderly According to Their Medical History. (N=100)

Medical history	No.	%
Presence of chronic disease:		
Yes	68	68.0
No	32	32.0
Diseases you suffer from: #		
Diabetes.	45	45.0
Hypertension.	60	60.0
Cardiac disease.	15	15.0
Liver disease.	10	10.0
Renal disease.	15	18.0
Osteoporosis and osteoarthritis.	56	56.0
Asthma.	33	33.0
Others.	25	25.0
Relevancy of caregivers for patients: #		
Sons.	31	31.0
Husband\wife.	48	48.0
Relatives.	19	19.0
Rely on themselves.	22	22.0

More than one answer

Table (2): shows revealed the clinical data of the studied elderly that (68%) of the studied sample suffer from the chronic disease with the highest rank of hypertension, osteoporosis & osteoarthritis, diabetes, asthma, and cardiac disease respectively. As regards the relevancy of caregivers, it was noticed from this table that (48.0%, 31%) of the studied elderly's caregivers were husband\wife and sons respectively.

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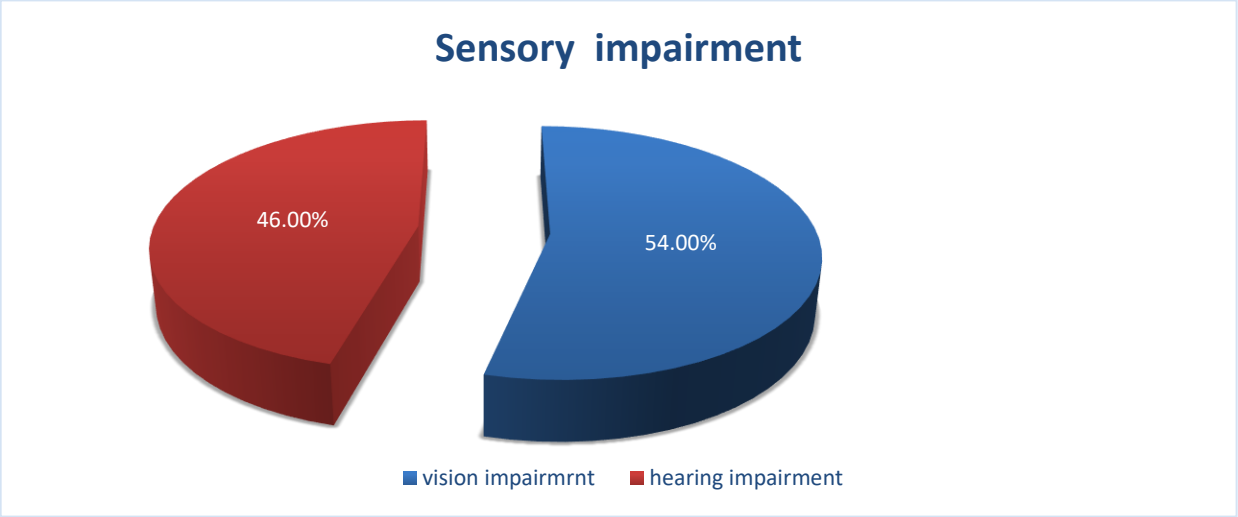

Figure (1): distribution of the studied elderly according to Types of Sensory Impairments, (N=100).

Figure (1): Displayed that 54.0% of the studied elderly had vision impairment, while 46.0% had a hearing impairment.

Table (3): Distribution of the Studied Elderly According to Their Hearing Impairment Characteristics. (N=46)

Hearing impairment characteristics	No=46	%
Side of hearing impairment:		
Right.	21	45.7
Left.	19	41.3
Both.	6	13.0
Duration of hearing impairment:		
Less than 1 yr.	20	43.5
1<5 yrs	15	32.6
5-10 yrs.	5	10.9
More than 10 yrs.	6	13.0
Degree of self-reported hearing difficulty:		
Minimal difficulty.	7	15.2
Moderate difficulty.	18	39.1
Severe difficulty.	20	43.5
No hearing\ loss of hearing.	1	2.2
Use of hearing aids:		
Yes.	28	60.9
No.	18	39.1

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Table (3): exhibits the characteristics of hearing impairment which Indicates that 43.5% of the studied elderly had a hearing impairment for less than 1 year. While (32.1%) had a hearing impairment for 1 <5 years. Concerning the self-reported degree of difficulty, this table shows that 39.1% and 43.5% of the studied elderly reported moderate and severe hearing difficulty, respectively. As regards the use of hearing aids, it can be observed that (60.9%) of the hearing-impaired elderly patients used the hearing aids.

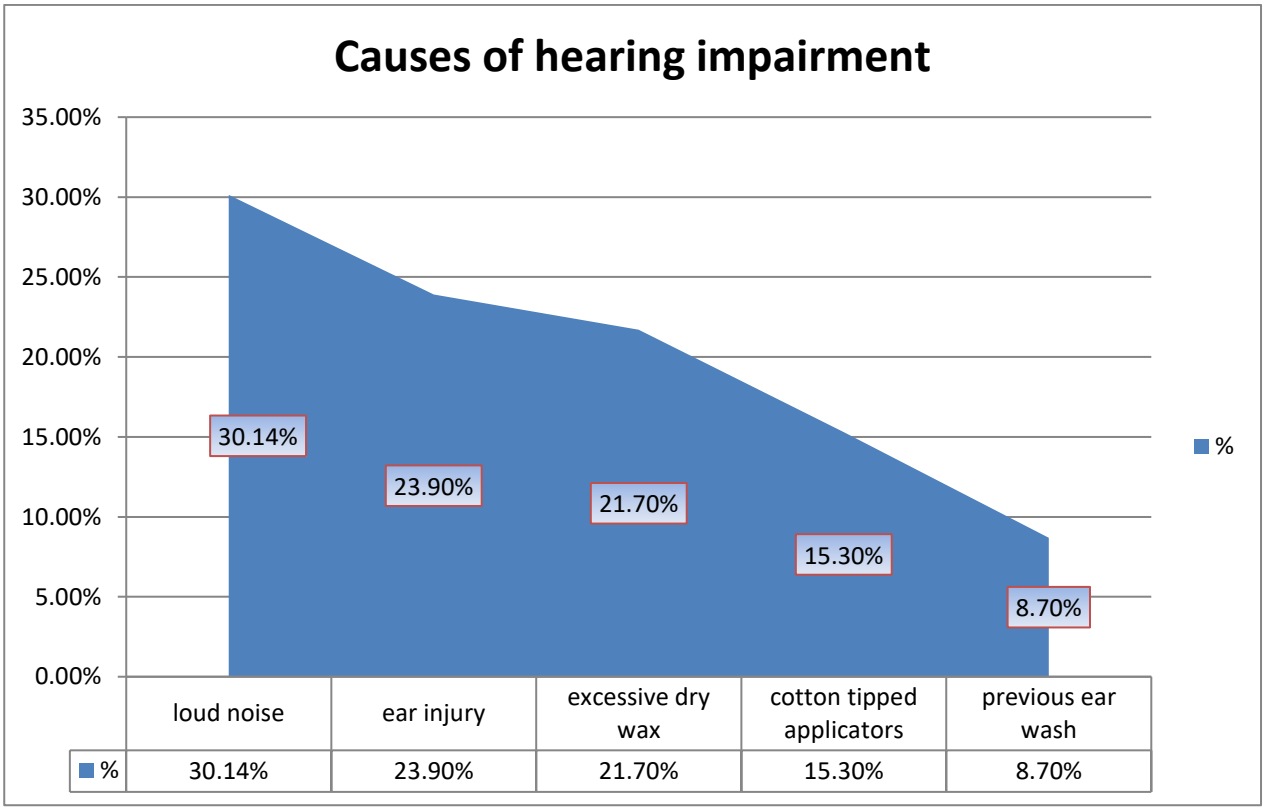

Figure (2): Distribution of the Studied Elderly Based on Causes of Their Hearing Impairment. (N=46).

Figure (2): Presents that 30.14% and 23.90% of the elderly had hearing impairment is because of regular exposure to loud noise and ear injury, respectively. While 21.7% because of excessive dry wax.

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Table (4): Distribution of the Studied Elderly According to Their Vision Impairment characteristics. (N=54)

Vision impairment characteristics	No.	%
Side of vision impairment:		
Right.	24	44.4
Left.	20	37.1
Both.	10	18.5
Duration of vision impairment:		
Less than 1 yr.	11	20.4
1<5 yrs	22	40.7
5-10 yrs.	17	31.5
More than 10 yrs.	4	7.4
Degree of self-reported vision difficulty:		
Minimal difficulty.	8	14.8
Moderate difficulty.	33	61.1
Severe difficulty.	13	24.1
Use of sight substitution device:		
Yes.	35	64.8
No.	19	35.2

Table (4): shows the characteristics of vision impairment, which indicates that about two-fifths (40.7%) of the elderly participants had vision impairment from 1<5 yrs. Additionally; this table clear that 61.1%, 24.1% of the elderly participants reported moderate and severe vision difficulties, respectively. Also, the table shows that 64.8% of them use the sight substitution device.

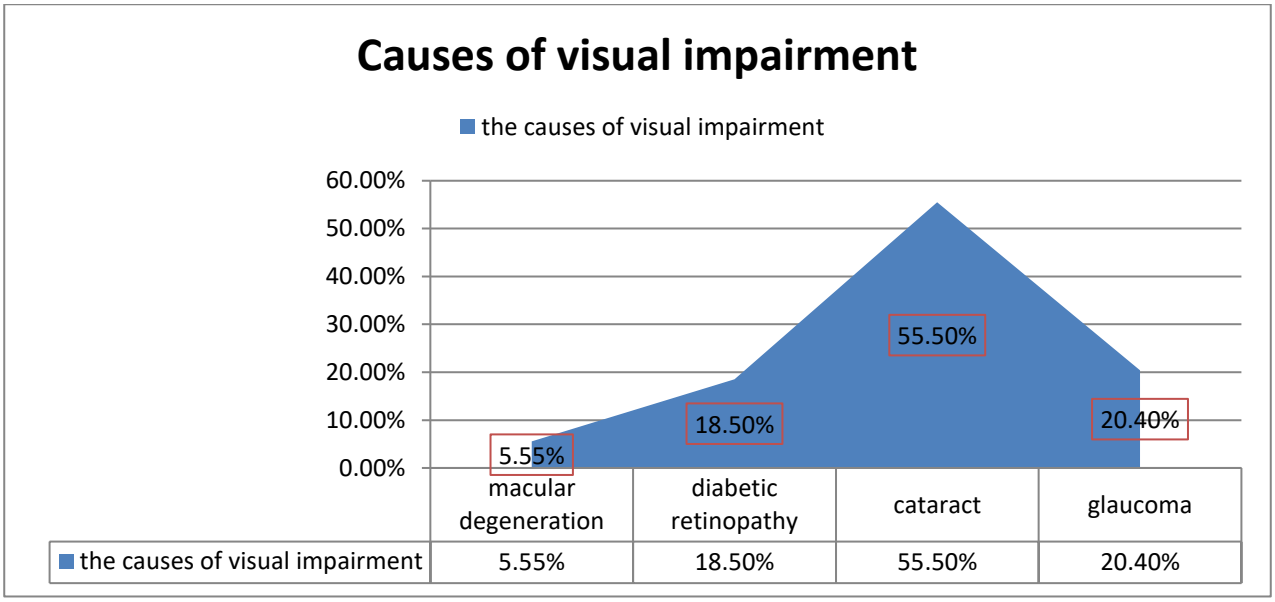

Figure (3): Distribution of the Studied Elderly According to the Causes of Visual Impairment characteristics (N=54)

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Figure (3): Reveals that 55.5% of the studied elderly had vision impairment caused by cataracts. While 20.4% and 18.5% because of glaucoma and diabetic retinopathy, respectively.

Table (5): Comparison of the Studied Elderly's Social Adjustment according to Hearing Handicap Inventory Scale at pre and posttest. (N=64)

	Social Adjustment items of Hearing handicap inventory scale	Pretest (Mn+Sd)	Posttest (Mn+Sd)	P-Value
1	Does a hearing problem cause you to use the phone less often than you would like?	3.78+0.795	2.90+0.882	0.023*
2	Does a hearing problem cause you to avoid groups of people?	3.77+0.780	4.21+0.805	0. 005*
3	Does a hearing problem cause you difficulty when attending a party?	4.11+0.770	3.56+0.968	0.03*
4	Do you have difficulty hearing when someone speaks in a whisper?	2.70+1.113	2.11+0.964	0.762
5	Does a hearing problem cause you difficulty when visiting friends, relatives, or neighbors?	3.56+0.891	3.10+0.913	0.046*
6	Does a hearing problem cause you to attend religious services less often than you would like	2.87+1.248	4.43+0.879	0.003*
7	Does a hearing problem cause you to visit friends, relatives, or neighbors less often than you would like?	2.29+0.827	3.38+0.835	0.062
8	Does a hearing problem cause you difficulty when listening to TV or radio?	2.78+1.132	4.11+0..943	0.004*
9	Does a hearing problem cause you to go shopping less often than you would like?	2.47+1.051	3.68+0.961	0.068
10	Does a hearing problem cause you to talk to family members less often than you would like?	2.60+0.985	3.40+0.897	0.027*
11	Does a hearing problem cause you difficulty when in a restaurant with relatives or friends?	3.78+0.958	4.25+0.742	0.054*
12	Does a hearing problem cause you to listen to TV or radio less often than you would like?	3.73+0.860	3.37+0.792	0.124

* Statistically significant difference ($p<0.05$), ** Highly statistically significant difference ($p<0.01$).

Table (5): Exhibits the social adjustment of the elderly participant based on the hearing handicap inventory scale, which shows statistically significant differences between most items in pre and post-test as follows using phone less, avoiding groups of people, difficulty attending parties, difficulty visiting relatives, less attend

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religious services, difficulty listening to TV or radio, less go shopping, less talking to family members, and difficulty when in restaurant, with p< 0.023, 0.005, 0.03, 0.046, 0.003, 0.004, 0.027 and 0.054, respectively.

Table (6): Comparison of the Studied Elderly's Emotional Adjustment based on Hearing Handicap Inventory Scale Throughout program phases (pre and posttest). (N=46)

Emotional Adjustment items of Hearing handicap inventory scale		Pretest(Mn+Sd)	Posttest (Mn+Sd)	P-Value
1	Does a hearing problem cause you to feel embarrassed when meeting new people?	3.70+0.975	3.28+0.988	0.076
2	Does a hearing problem make you irritable?	3.51+0.884	3.21+0.763	0.055
3	Does a hearing problem cause you to feel frustrated when talking to members of your family?	1.84+0.953	2.17+1.099	0.001*
4	Does a hearing problem cause you to feel "stupid" or "dumb"?	4.04+0.909	3.26+0.699	0.004*
5	Do you feel handicapped by a hearing problem?	3.38+0.894	2.63+0.955	0.022
6	Does a hearing problem cause you to be nervous?	3.45+1.103	2.69+1.061	0.004*
7	Does a hearing problem cause you to have arguments with family members?	3.86+0.925	3.98+0.908	0.078
8	Does any problem or difficulty with your hearing upset you at all?	2.51+1.169	2.73+1.042	0.907
9	Does a hearing problem cause you to want to be by yourself?	3.06+1.070	2.93+1.100	0.085
10	Do you feel that any difficulty with your hearing limits or hampers your personal or social life?	3.70+0.946	3.64+0.930	0.874
11	Does a hearing problem cause you to feel depressed?	2.88+0.877	3.25+0.976	0.063
12	Does a hearing problem cause you to feel uncomfortable when talking to friends?	2.43+.854	3.56+0.883	0.065
13	Does a hearing problem cause you to feel left out when you are	3.65+0.945	4.22+1.063	0.907
	Total emotional adjustment	42.01+12.504	41.55+12.467	

* Statistically significant difference (p<0.05), ** Highly statistically significant difference (p<0.01).

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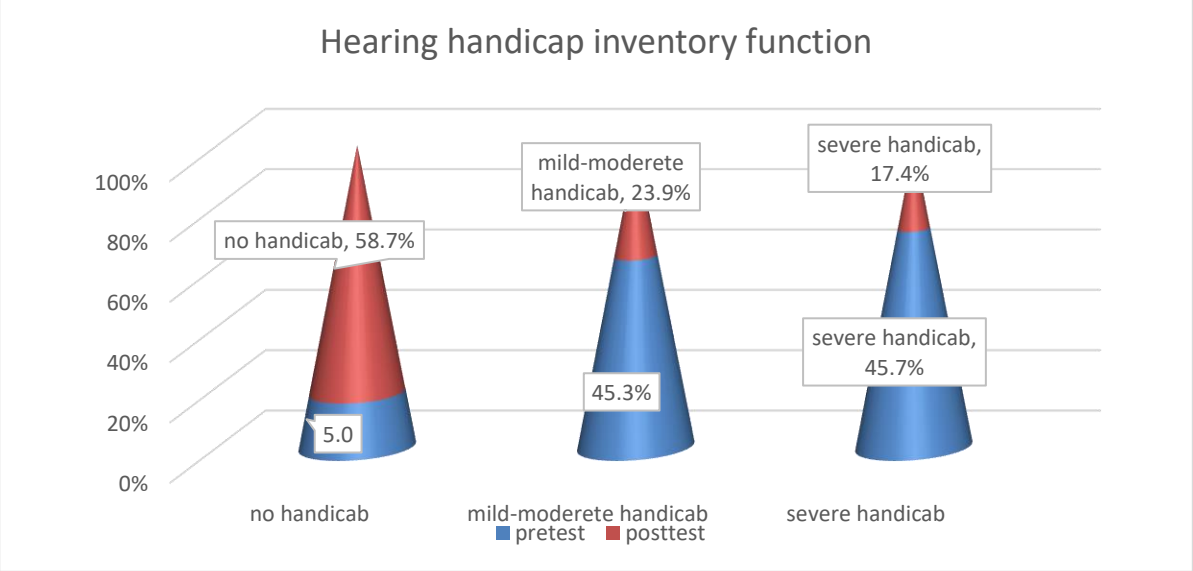
Table (6): Explore the emotional adjustment of the hearing handicap elderly participant, which shows statistically significant differences between most items in the pre and post-test regarding the feel of frustrated, "stupid" or "dumb, handicapped, and nervous, at p<0.001, 0.004, 0.022, 0.004, respectively.



Chi-square test,
* Statistically significant difference (p<0.05), ** Highly statistically significant difference (p<0.01).

Figure (4): Total Score of Hearing Handicap Inventory among the Studied Elderly in Pre and Post-Test After the Rehabilitation Program. (N=46. P<0.002).**

Figure (4): Illustrates that there was a statistically significant difference between the studied elderly total score of hearing handicap inventory function in pre, and post-program application (P<0.002).

Table (7) comparison of the Studied Elderly's National Eye Institution Visual Function Questionnaires subscales (ARB-VFQ-25) pre and posttest. (N=54)

(NEI-VFQ 25	Pretest Mn+SD	Posttest Mn+SD	P-Value
General health	58.69 (2.75)	63.85 (1.80)	0.001
General vision	33.43 (2.21)	39.69 (1.45)	0.001
Ocular pain	88.27 (1.28)	87.54 (1.95)	0.023
Near activities\vision	25.41 (2.79)	32.69 (1.83)	0.0001
Distance activities\ vision	34.59 (2.76)	44.71 (1.81)	0.0001
Vision speciefic social function	49.81 (2.87)	61.33 (1.89)	0.0001
Vision speciefic mental health	31.52 (3.09)	38.86 (2.03)	0.0001
Vision speciefic role difficulties	36.09 (3.51)	42.20 (2.30)	0.0001
Vision speciefic dependency	46.54 (2.15)	36.25 (3.27)	0.0001
Driving	8.33 (4.34)	16.79 (2.68)	0.0001
Color vision	71.21 (2.71)	77.05 (1.77)	0.0001
Peripheral vision	66.57 (3.01)	70.42 (1.96)	0.0001

* Statistically significant difference (p<0.05), ** Highly statistically significant difference (p<0.01).

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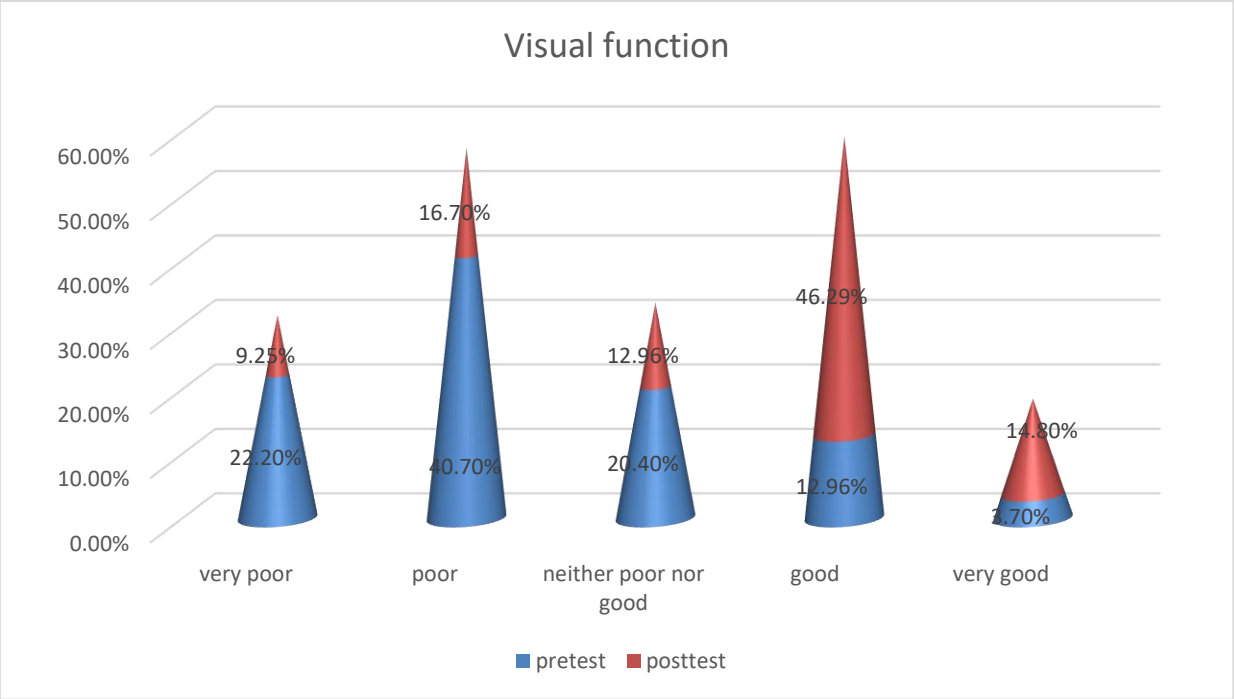
Table (7): Exhibits that there was a statistically significant difference between the studied elderly subscales of the visual functioning questionnaire in pre, and post-program application with P<0.001 for most of the subscales.



Chi-square test,
* Statistically significant difference (p<0.05), ** Highly statistically significant difference (p<0.01).

Figure (5): Comparison of the studied elderly's Visual Functioning Questionnaire Throughout Program Phases.

Figure (5): Clears the relation between the studied elderly total score of vision functioning in pretest, and immediate post-test; It was found that there was a statistically significant difference between elderly visual functioning (visual-related quality of life) after the program application P<0.023.

Table (8): Correlation between the studied elderlys hearing inventory handicap and visual functioning questionnaire pre &posttest.

Items	Pre intervention		Post intervention	
	R	P	r	P
Hearing handicap inventory	0.288	0.004*	0.375	<0.001*
Visual functioning questionnaire	0.312	0.002*	0.303	0.003*

*Statistically significant at p ≤ 0.05 r= Pearson correlation

Table (8): Reveals the correlation between the studied elderly regarding hearing handicaps and visual functioning in pre and post-test. This indicates positive

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correlation and statistically significant differences between hearing handicap inventory with r=0.375 & p <0.001. Also, positive correlation and statistically significant differences between visual functioning in pre and post-test with (r= 0.303 & p <0.003*)

Discussion:

Sensory impairment can lead to functional, psychological, and social limits in mobility, daily living activities, and social interactions, even though it is not a life-threatening condition. The medical sciences have taught us that our sense organs balance each other out. When a person has a visual impairment, for instance, the body could compensate with other senses (mainly hearing) and vice versa. When both senses are affected, there is a high probability of declining quality of life **[11].**

The current study found that men made up over half of the senior participants. **[12]** noted that almost two-thirds were men, and the results support their findings. The findings, however, contradict those of **[13, 8]** who reported that almost two-thirds of the elderly were women. As regards residence, more than three-quarters of the older people in this study are from rural areas, according to the study's findings. In contrast to private clinics, Assiut University Hospitals, which serve the surrounding rural areas at a reasonable cost, maybe the reason for this. **[12]** reported that less than two-thirds of the senior participants were from rural areas, which is in line with this conclusion.

More than half of the studied elderly were illiterate as presented in this study, which disagreed with **[8]** who recorded that more than three-quarters of the studied elderly unable or able to read\write and with **[14]** noted that more than two-fifths of the participant elderly had a medium\high level of education. In addition the study results of **[15]** indicated that almost half of the participant's elderly had completed high school and university education.

The present findings revealed that more than three-quarters of the study, seniors were living with a spouse only\family. This may be because of our Assiut governorate as upper Egypt still maintains family ties and caregiving with parents and close relatives. Consistent with **[12],** who found that the great majority of the elderly participants reside with family. However, **[13]** disagreed with the findings,

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finding that almost two-fifths of the senior participants live alone. According to **[16],** over two-thirds of the elderly people in the study live alone.

In addition, almost half of the responsible caregivers were husband\wife in this study; while less than one-third were a son. Furthermore, **[14]** mentioned that more than half the responsible caregivers were husband\wife, while more than one-third were son. On the other hand, **[8]** discovered that less than two-thirds of the responsible caregivers were sons, while less than one-third were husband\wife.

Over two-thirds of the older individuals in this study had one or more chronic diseases, according to the study findings. This could be due to age-related changes and cumulative impact of several risk factors. Of all the chronic illnesses, sensory impairment is one of the most difficult medical problems to manage. The degradation of sensory deficits, such as hearing and vision or both, is a common occurrence as people age **[17].** Hence**,** vision impairment was observed in more than half of the studied elderly, and more than two-fifths had a hearing impairment, this power age-related changes impact sensory organs and the lack of adequate vision and hearing care. These findings are consistent with those of **[15]**, who found that over three-quarters of older adults had some form of hearing loss, most had some form of visual impairment, and over one-fifth had dual sensory loss.

Our results also showed a high prevalence of diabetes and hypertension among participants. These comorbidities are known to accelerate degenerative changes in the retina and auditory nerve, exacerbating sensory decline. Thus, managing these conditions is critical for preserving sensory function and improving rehabilitation outcomes.

Almost two-fifths and more than two-fifths of the studied elderly self-reported moderate and severe hearing difficulty, respectively. This may be attributed to the prevalence of hearing impairment and the lack of literacy of the elderly about caring for and adapting to hearing impairment. This result is congruent with **[13]** stated that more than half of the elderly report moderate hearing difficulty.

The present finding displayed that more than half and one-fifth of the elderly have moderate and severe vision difficulty, correspondingly. This may be qualified to the effect of chronic diseases on those segments of the population with advanced

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deterioration of vision impairment. Furthermore, **[13]** discovered that more than three-quarters of the elderly reported moderate and severe vision difficulty for near and distance vision. Otherwise; the present study highlighted the causes of hearing impairment among the studied elderly. It was observed that there was less than one third and more than one-fifth of them had hearing impairment because of loud noise, and ear injury or dry wax; respectively. These results are in contradiction to the result by **[12],** who stated that more than two-thirds of elderly hearing impairment occurs because of dry wax and cotton-tipped applicators. While more than two-fifths occur because of loud noise.

The findings of the current study revealed that about one-fifth and more than half of the senior participants had vision impairment as a result of cataract, glaucoma, and diabetic retinopathy. In this line, the results by **[14]** reported that more than one-third and more than one-fifth of elderly vision loss is caused by macular degeneration and cataracts, respectively. Also; the result confirmed by **[8]** recorded that more than three-quarters of elderly vision impairment occurs because of cataracts. While disagreeing with **[13]** who found that more than half of elderly vision impairment is caused by macular degeneration, while one ten is caused by cataracts. As regards the total score of hearing handicaps among elderly participants, the current finding pointed out that more than two-fifths and less than half of the elderly had moderate and severe hearing handicaps in the pretest respectively. This might be the result of a high rate of illiteracy and a dearth of sensory health education regarding hearing care or adaptation to hearing impairment in the elderly.

The current study explored the influence of the rehabilitation program and displayed that, more than half of the elderly had no hearing handicap. It can be reaffirmed that the rehabilitation program's implementation improved its function and ability to adapt. As a result, the pretest and post-test total scores for the senior participants in the study's hearing handicap inventory function differed statistically significantly. Thus, the study by **[13]** supports our findings by pointing out that older persons living in the community and getting sensory rehabilitation treatments typically have high levels of independence and general excellent health.

In this respect, **[18]** suggested that those elderly in the intervention group who followed all of the advice were all significantly improved. That modest intervention has a great potential for improving vision and hearing and, they also indicated that

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implementing hearing and vision tests in the community health house, as a standard offer as part of mandatory preventive home visits by nurses would benefit both the individuals and the community at large.

The results of the current study revealed that more than a fifth and more than two-fifths of the studied elderly had very poor and poor visual function in the pretest, separately. This may be due to a lack of elderly literacy and ability to adjust for vision impairment which undoubtedly affects their life, while after implementation of the rehabilitation program noted less than half of the elderly had a good visual function. These reveal that the implementation of the rehabilitation program was successful in improving elderly adaptation and function. Thus, there was a statistically significant difference between the total score of visual function in pre and post-tests.

According to **[8],** nearly two-fifths of the elderly individuals under research had neither poor nor good visual function, while over two-fifths of them had good visual function. These findings are in line with those of the current study. Additionally, these study findings concur with those of **[19],** who found that self-management programs for seniors with dual sensory impairments in aged care settings are beneficial and might be widely shared. These findings of the current study are corroborated by **[8],** who affirm that care personnel must have greater assistance in order to give the best possible eye and ear care and assess the efficacy of procedures put in place for the senior residents' hearing and vision.

Conclusion:

On the basis of the findings of this research. It was established that prior to the program's implementation, over two-fifths and over half of the elderly individuals under study had moderate and severe hearing handicaps with poor emotional and social adjustments before the implementation of the program, while more than half of them had no hearing handicaps had good social and emotional adjustments after the program was implemented. Also; in the pre-test, more than two-fifths of the elderly had poor vision functioning explaining poor vision-related quality of life, whereas after the rehabilitation program was implemented, more than half of them had good vision functioning and good vision-related quality of life.

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Recommendations:

The present study's findings led to the following recommendations being proposed:

1. Conducting regular vision and hearing examinations as part of the elderly's recurring sensory evaluation in order to identify and treat sensory abnormalities early and enhance their quality of life.
2. To further understand older persons' anxiety related to sensory impairment, this study must be replicated using a qualitative research approach.
3. Raising community awareness about the importance of sensory function for older adults' independence and measures to avoid sensory impairment through a specialized community campaign
4. Establishing a specialized management plan for elderly sensory impairment about sensory enhancement, promoting adaptation, and increasing functioning.
5. Including courses on sensory health in nursing schools' and faculties' curricula to raise knowledge of sensory health care.

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