Physical and Psychological Behaviors among Patients with Hearing Loss

Sarah Abed alsada
Nuha Adel Ibrahim

[1] Academic Nurse, BSN, MSc, Al-Dwainiyia Health Directorate, Al-Dwainiyia , Iraq. Email: sara.abd2206m@conursing.uobaghdad.edu.iq
[2]Assistant Professor, PhD, Department Maternal and Neonate Nursing, College of Nursing university of Baghdad, Baghdad, Iraq

Corresponding author: **Sarah Abed alsada, E-mail:** sara.abd2206m@conursing.uobaghdad.edu.iq

Physical and Psychological Behaviors among Patients with Hearing Loss

Sarah Abed alsada
Nuha Adel Ibrahim

Abstract

Background and Objectives : Hearing loss is the presence of a specific degree of impaired hearing in one or both ears. Hearing loss is typically classified into four categories: mild, moderate, severe, and profound. Hearing loss is a common result of aging, leading to a decline in our auditory capacity and making it challenging to perceive speech.

Objective To evaluate the effectiveness hearing of loss on the physical and psychological behaviors of patients

Methods: A descriptive study utilizing a nonprobability-purposive sampling method was at Otolaryngology department in Al-Diwaniya teaching hospital, in Al-Diwaniyah city, Iraq on 200 from 25/12/2023 to 1/3/2024.

Inclusion in the study Patients must be 18 years of age or older, all patients underwent detailed pure tone audiometry

Data collection tool which was used in this research was WHO Quality of Life-BREF (WHOQOL-BREF) Version in Arabic. Analyze the collected data using SPSS version 27**.**

Results: The analysis shows that the average age for adults with hearing loss is 45.5±15.5 years, the sex refers that 60.5% of adults with hearing loss are females and 39.5% of them are males.

Also, the study shows that hearing loss has a moderate physical quality of life, and have moderate level of psychological quality of life

Conclusion: the study conclude that hearing loss has an effect of the physical and psychological health of patients with hearing loss and

need for interventional studies to reduce these effects and study causes that leads to these effect

المستخلص

الخلفية والأهداف: فقدان السمع هو وجود درجة معينة من ضعف السمع في إحدى الأذنين أو كلتيهما. يتم تصنيف فقدان السمع عادةً إلى أربع فئات: خفيف، ومعتدل، وشديد، وعميق. فقدان السمع هو نتيجة شائعة للتقدم في السن، مما يؤدي إلى انخفاض قدرتنا السمعية ويجعل من الصعب إدراك الكلام.

الهدف: تقييم مدى فعالية سماع فقدان الفقدان على السلوكيات الجسدية والنفسية للمرضى

طرق البحث: دراسة وصفية باستخدام أسلوب أخذ العينات غير الاحتمالية والغرضية أجريت في قسم الأنف والأذن والحنجرة في مستشفى الديوانية التعليمي في مدينة الديوانية، العراق بتاريخ ٢٥/١٢/٢٠٠ إلى ١/٣/٢٠٢٤.

الإدراج في الدراسة: يجب أن يكون عمر المرضى ١٨ عامًا أو أكثر، وخضع جميع المرضى لقياس تفصيلي لنغمة الصوت النقية

أداة جمع البيانات التي تم استخدامها في هذا البحث هي نسخة منظمة الصحة العالمية لجودة الحياة-(WHOQOL-BREF) BREF باللغة العربية. تحليل البيانات المجمعة باستخدام برنامج SPSS الإصدار ٢٧.

النتائج: أظهر التحليل أن متوسط عمر البالغين الذين يعانون من ضعف السمع هو ٤٥,٥±١٥,٥ سنة، ويشير الجنس إلى أن ٦٠,٥% من البالغين الذين يعانون من ضعف السمع هم من الإناث و٣٩,٥% منهم من الذكور.

كما أظهرت الدراسة أن فقدان السمع يتمتع بجودة حياة بدنية متوسطة، ومستوى جودة حياة نفسي متوسط

الاستنتاج: خلصت الدراسة إلى أن فقدان السمع له تأثير على الصحة الجسدية والنفسية للمرضى الذين يعانون من فقدان السمع وتحتاج إلى دراسات تدخلية للحد من هذه الآثار ودراسة الأسباب التي تؤدي إلى هذا التأثير

Key words: ***physical behaviors, psychological behaviors, quality of life, hearing loss***

1-Introduction:

Hearing is the sensory process that enables us to perceive sounds, interpret them, and give them significance. Hearing impairment is caused by a reduced capacity to perceive sounds[1]

Effective communication is essential for exchanging information and improving the quality of life. Impediments in communication can result in a decline in quality of life.[2]

Hearing loss in adults may hinder the transmission of information, resulting in communication breakdowns in everyday life. Hearing

loss can hinder daily activities and lead to emotional reactions like loneliness, isolation, anxiety, and fear.[3] the most common categories of hearing loss classifications are a mild, moderate, severe, and profound hearing loss[4]

There is a growing focus on how hearing impairment, or hearing loss, impacts quality of life (QoL). Since 1946, the World Health Organization (WHO) has said that health encompasses not just the absence of illness but also the existence of physical, mental, and social well-being. The expansive interpretation of health has resulted in an increasing focus on assessing health-related quality of life (HRQoL). [5]

Participation in lifestyle activities impacts upon physical,social, psychological, and environmental well-being for individuals all of these elements lead to for integration[6]

Quality of life (QOL) is a broad concept.[7]refers to the overall well-being and prosperity of individuals and communities, encompassing both negative and positive aspects of life. The concept observes life satisfaction, encompassing aspects such as physical health, family, education, career, wealth, religious beliefs, finance, and the environment.[8]

A great quality of life is apparent when community members possess the necessary conditions for excellent health [9]

(QOL) research is vital in addition to medical assessments[10]

interest in HRQOL has increased in recent decades[11]

HRQOL has become a significant health outcome alongside morbidity and mortality in recent years.[12]analysis assesses the effects of therapies and disease processes on several areas of a person's life, assessing these effects from the patient's viewpoint, and identifying the necessity for social, emotional, and physical assistance during disease[13]

HRQOL is now commonly used to evaluate the success of treatment therapies.[14]

The role of physical pain and distressing sensations in negatively affecting daily quality of life (QOL) is significant. It is assumed that the easier it is to alleviate pain, the less fear and negative impact it will have on QOL. Additionally, the constant threat of pain, even

when not currently experiencing it, can still impact QOL. Individual tolerance and acceptance of pain may also moderate or worsen the impact of physical pain on QOL. Ultimately, pain diminishes the overall quality of life[15] Studies repeatedly demonstrate a strong association between hearing impairment and physical well-being [16]

A study discovered that elderly individuals with hearing impairments exhibited a more sedentary lifestyle[17]

Research has discovered that experiencing hearing loss might result in heightened levels of weariness associated with listening, which subsequently has an impact on overall well-being [18]

Hearing impairment is linked to reliance on activities of daily living (ADL) and death [19]

People who have hearing loss are had a great effect on psychological health like depression, anxiety, and stress[20]

The correlation between hearing impairment and mental health disorders in low- and middle-income nations is an increasingly worrisome issue

HL influences an individual's daily activities, leading to a reduced quality of life [21] and negative impacts on socialization, independence, interpersonal connections, and communication[22]

Hearing loss in older individuals is significantly linked to handicaps, higher chances of developing illnesses, negative self-perceived health, reduced psychological health, low levels of self-confidence, [23] .and happiness

Hearing impairment is the predominant sensory disability in older adults. Previous literature reviews indicate that hearing impairment has a negative correlation with the mental health and quality of life of individuals[24]

HL is a prevalent issue linked to ageing and is expected to become more significant [25]

The World Health Organization reports that hearing loss impacts around 5% of the global population and is expected to affect over 700 million individuals by 2050. 430.4 million people worldwide

experience varying degrees of hearing loss,[26] In Iraq Hearing loss has been more prevalent among Iraqi people since 2006, perhaps due to the effects of civilization and urbanization[27]

Objectives of Study

1. To evaluate the effectiveness of hearing loss on the physical and psychological behaviors of patients.

2-Methods&Patients

2.1 Study design and setting :

A descriptive study was carried out at the Otolaryngology department on 200 patients was used, which was non-randomized at Al-Diwaniya Teaching Hospital, located in Al-Diwaniyah From December 25th, 2023, to February 26th, 2024.

Study population and sampling technique

The study included a sample of 200 patients who visit Al-Diwaniyah Teaching Hospital . A nonprobability-purposive sampling technique was used to select the participants.

Patients who are eligible for study with age over 18 years with Diagnosed with hearing loss. While the exclusive criteria was Hearing-impaired individual, Incapacity to comprehend, collaborate, and respond. And Suffering from a terminal illness

2.2 Sample size.

The number of people who had examined in pure tone audiometry at Otolaryngology department in Al-Diwaniya teaching hospital, in Al-Diwaniyah city four months was 500.

After following the table prepared by Krejcie & Morgan for the sample size for a known population[28] , it was found that the sample size was 217, 17 questionnaires were ruled out because of the inaccuracy and clarity of the answers.

Data collection and Study instruments

Data were collected via a self-report questionnaire

utilizing the WHO Quality of Life-BREF (WHOQOL-BREF) Version in Arabic.

The WHOQOL-BREF is a 26-item questionnaire with four domains: 1.Physical health (7 items)

2.Psychological health (6 items)

3.Social relationships (3 items)

4.Environmental health (8 items).[29]

It also includes questions about quality of life and general health. Each item of the WHOQOL-BREF is rated on a five-point ordinal scale from 1 to 5.

Hearing loss measured by PTA

2.3 Pilot study

A pilot study was conducted for one week before beginning data collection from 2023 /12/ 20 to 2023 /12 /23 .

A pilot study was carried out using a sample size of 20 participants

The study results showed that the questions were simple to understand. The questionnaire can be completed in an appropriate period of 5-10 minutes. The pilot study sample has been excluded from the original study sample.

2.3 Ethical consideration and agreement

Approval from the ethics committee of Baghdad Nursing College. Participation in the study was voluntary. The researcher clarified the study's objectives to the patients and their relatives. All patients who choose to participate in the trial provided verbal consent. All individuals were freely given the decision to participate in the study. They were permitted to withdraw whenever they felt uncomfortable. Full confidentiality was guaranteed, and all gathered data will be utilized solely for research reasons. Personal details were obtained with serial identifying numbers, ensuring anonymity.

2.4 data collection:

Data were collected by a self-administered questionnaire comprising three components.

Part one was designed by the researcher and authorized by the supervisor.

The Socio-demographic data of patients includes gender, age, education level, marital status, occupation, income, and property ownership.

Part two: Medical information

Part three: Quality of life was assessed by a self-reported structured questionnaire utilizing the WHO Quality of Life-BREF (WHOQOL-BREF) Version in Arabic

The WHOQOL-BREF is a 26-item questionnaire with four domains item of the WHOQOL-BREF is rated on a five-point ordinal scale from 1 to 5[29].

Statistical analysis

The data were analyzed using IBM's Statistical Package for Social Science (SPSS) for Windows, version 27. The descriptive statistical measures of frequency and percent were employed. The measures of central tendency, specifically the arithmetic mean, and scattering, specifically the standard deviation, were also employed. Spearman's rank correlation coefficient was employed to determine the relationship between the variables under study. Point Biserial Correlation was employed to quantify the disparity in the dependent variable when the independent variable comprises two distinct categories

3-Results: The mean age 64.7±11.699. as gender distribution 60.5% of adults with hearing loss are females and 39.5% of them are males. The residency refers that the majority of adults with hearing loss are resident in urban (92.5%). according to causes of hearing loss 57.5% of them reported that diseases were the cause, 38.5% reported that trauma was the cause,

Table (1): Physical behaviors among Adults with Hearing Loss

Physical behavior's	f	%	M	SD	Ass.
Low	59	29.5	20.27	5.977	Moderate
Moderate	101	50.5			
High	40	20			
Total	*200*	*100*			

f: Frequency, %: Percentage, M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment
Low= 7 – 16.33, Moderate= 16.34 – 25.66, High= 25.67 – 35

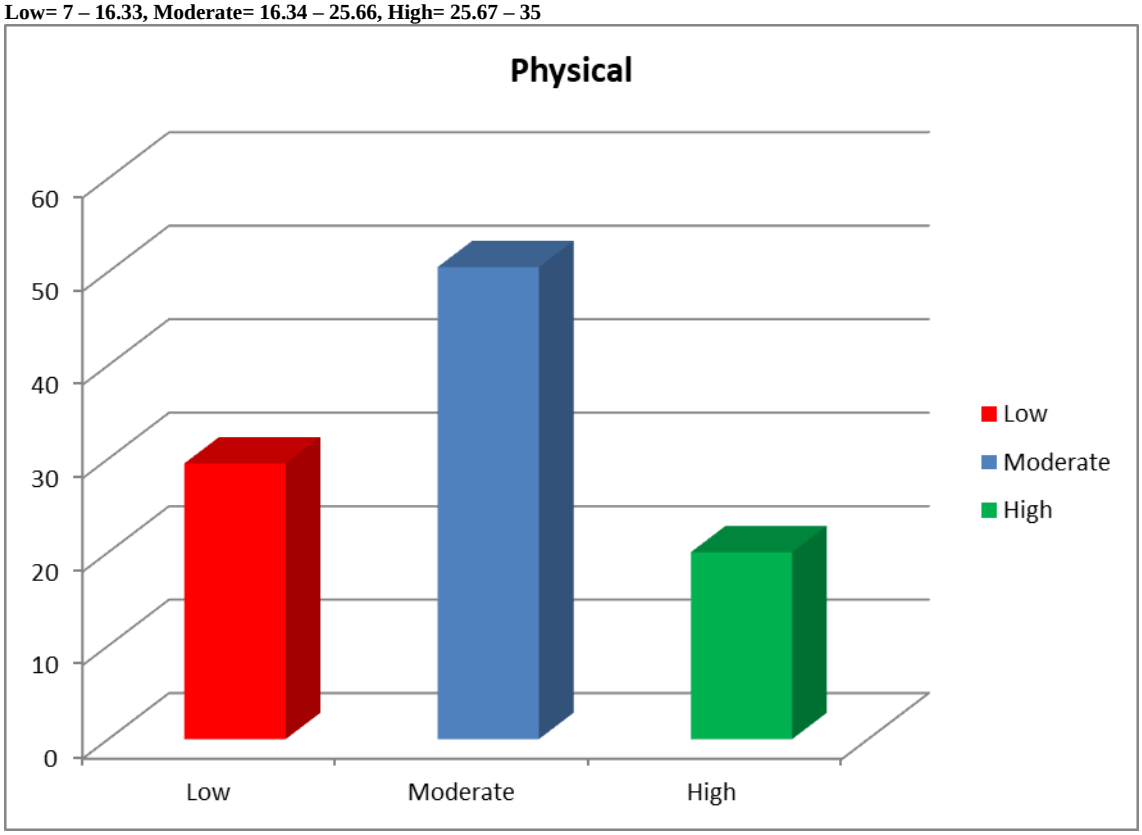

Figure (1): Levels of Physical Quality of life among Adults with Hearing Loss (N=200)

Evaluation of Physical Domain among Adults with Hearing Loss (N=200)

List	Physical	M	SD	Evaluation
1	To what extent do you feel that physical pain prevents you from doing what you need to do?	2.68	1.302	Moderate
2	How much do you need any medical treatment to function in your daily life?	2.49	1.315	Moderate
3	Do you have enough energy for everyday life?	2.88	1.223	Moderate
4	How well are you able to get around?	2.92	1.200	Moderate
5	How satisfied are you with your sleep?	2.99	1.258	Moderate
6	How satisfied are you with your ability to perform your daily living activities?	3.19	1.130	Moderate
7	How satisfied are you with your capacity for work?	3.15	1.324	Moderate

M: Mean, SD: Standard Deviation
Low= 1 – 2.33, Moderate= 2.34 – 3.66, High= 3.67 - 5

This table presents the items of quality of life related to physical domain among adults with hearing loss; the mean scores indicate that adults with hearing loss have a moderate quality of life related to physical aspect among all items.

Table (2): Evaluation of Quality of Life related to "Psychological Domain" among Adults with Hearing Loss

Psychological QoL	F	%	M	SD	Ass.
Low	45	22.5	18.45	4.916	Moderate

Moderate	116	58			
High	39	19.5			
Total	***200***	***100***			

f: Frequency, %: Percentage
M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment
Low= 6 – 14, Moderate= 14.1 – 22, High= 22.1 – 30

This table reveals that adults with hearing loss have a moderate level of psychological quality of life as reported among 58% of them.

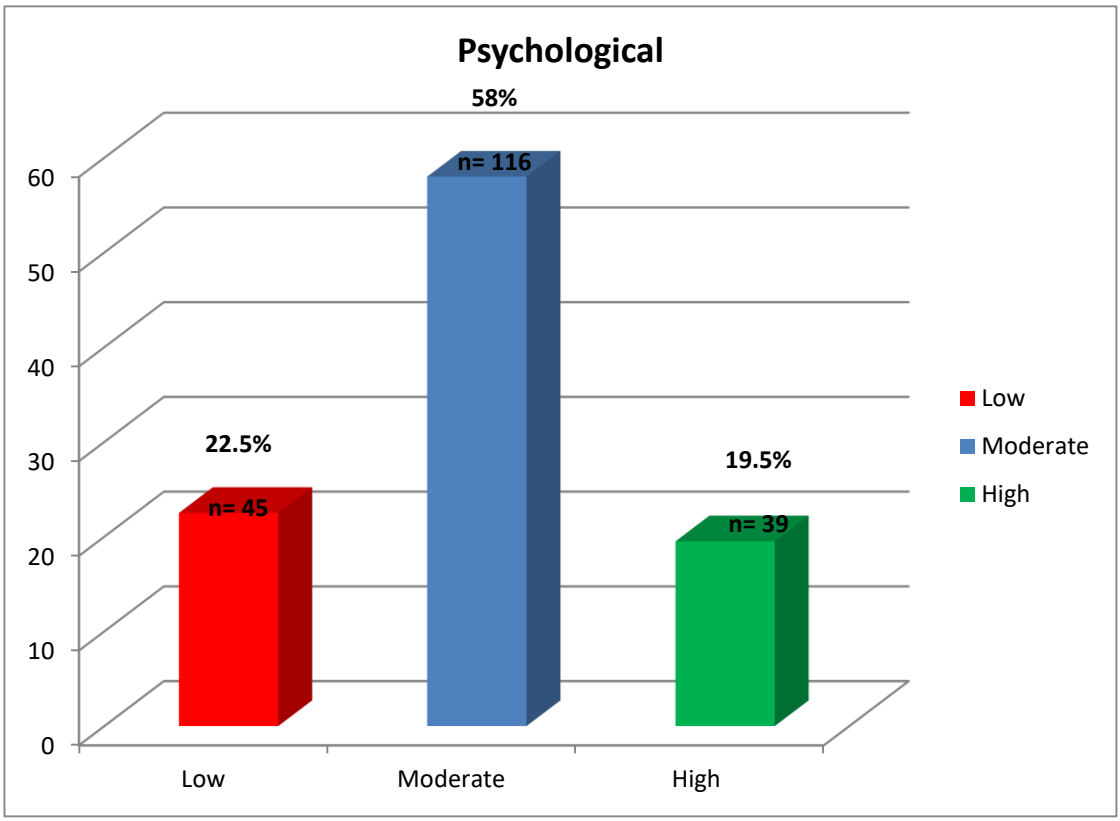

Figure (2): Levels of Psychological Quality of life among Adults with Hearing Loss (N=200)

This figure reveals that 58% of adults with hearing loss associated with a moderate psychological quality of life.

Table (3-6): Evaluation of Psychological Domain among Adults with Hearing Loss (N=200)

List	Psychological	M	SD	Evaluation
1	How much do you enjoy life?	2.67	1.220	Moderate
2	To what extent do you feel your life to be meaningful?	3.07	1.178	Moderate
3	How well are you able to concentrate?	2.87	1.113	Moderate
4	Are you able to accept your bodily appearance?	3.64	1.117	Moderate
5	How satisfied are you with yourself?	3.79	1.167	High
6	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	2.42	1.200	Moderate

M: Mean, SD: Standard Deviation
Low= 1 – 2.33, Moderate= 2.34 – 3.66, High= 3.67 - 5

This table presents the items of quality of life related to psychological domain among adults with hearing loss; the mean scores indicate that adults with hearing loss have a moderate quality of life related to psychological aspect among all items except item (*How satisfied are you with yourself?*) that show high.

Table (3): Overall Evaluation

Overall QoL	f	%	M	SD	Ass.
Low	**30**	**15**	**79.11**	**17.065**	**Moderate**
Moderate	**130**	**69**			
High	**32**	**16**			
Total	***200***	***100***			

f: Frequency, %: Percentage, M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment
Low= 6 – 14, Moderate= 14.1 – 22, High= 22.1 – 30

4-Discussion:

Table (1) indicates that 50.5% of adults with hearing loss have moderate physical quality of life while 29.5% of them have low physical quality of life.

Studies regularly demonstrate that people with hearing loss, especially those with moderate to severe impairment, have a notable decrease in their quality of life[30], particularly in their physical health. Hearing impairment in older people is linked to a lower physical health-related quality of life. [31]

Hearing loss can lead to reduced physical activity levels due to the inability to monitor the environment during activity or as a result of social isolation and greater cognitive demands[32] linked to reduced physical activity, including decreased moderate-to-vigorous physical activity, reduced light-intensity physical activity, increased sedentary habits, and a more disrupted physical activity pattern[16]

The results of the Martinez-Amezcua et al1 study show correlations between walking endurance, gait speed, and balance, which may suggest that these aspects of lower extremity function are most affected by hearing loss. The relationship between hearing loss and poorer balance or walking skills, though not specifically explored in this study, may assist to explain part of the correlation with falls.[33]

The Table (2) shows that 58% of people with hearing loss have a moderate level of psychological behavior.

Hearing loss in older individuals is significantly linked to handicaps, higher chances of developing illnesses, negative self-perceived health, reduced psychological health, low levels of self-confidence, and happiness. [34]

Hearing loss was linked to higher chances of psychological discomfort and more use of mental health services. Using a hearing aid was linked to a lower chance of experiencing psychological distress [35]

A study conducted in the USA using data from the 2017 sample, comprising 26,734 individuals 18 years of age and older, found a

correlation between higher self-reported HL and higher probabilities of psychological distress. People with moderate or higher HL were around 1.5 times more likely to have received mental health care in the previous year, and they were also about 2 times more likely to report psychological discomfort and use antidepressant or anxiety drugs than people with no HL [35] The study in Egyptian ENT outpatient clinic was done on 196 participants in the study were divided into three groups: 100 patients with subjective tinnitus in addition to hearing loss (the tinnitus group), 45 patients with hearing loss alone (the hearing loss group), and 50 healthy subjects without tinnitus or hearing loss (the control group). The subjects' ages ranged from 20 to 60 years old, and the prevalence of clinically significant anxiety symptoms was found to be 8.7% in those with hearing impairment without tinnitus and 86% in those[36]

Study Xie et al (2015) in Chin found People with hearing loss had higher anxiety scores than people with normal hearing. ($P < 0.05$)[37]

Sogebi et al. (2015) assessed 130 elderly patients (60–94 years) with clinically diagnosed hearing loss from Nigeria and found that people with hearing loss had significantly higher levels of depression than controls without hearing loss ($P < 0.05$) [38]

Cetin found people with hearing loss had higher depression scores than control subjects ($P < 0.05$). [39]

Rutherford et al nicely summarized potential mechanisms linking hearing loss and depression , Effects of HL on social engagement and loneliness as well as on changes in brain structure and function may both contribute to psychological distress and depression[40]

Table (3) shows a moderate overall effect on patients' behaviors with hearing loss, due to most of patient have a moderate Hl in the study and Hearing loss is an invisible ailment that is not visually apparent.

Unlike other disabilities, many individuals often do not view hearing loss as a disabling condition [41]
The patient with hearing impairment experiences a worse quality of life compared to individuals with normal hearing [42]

5-Conclusion:

Hearing loss has an Impact of the quality of life of patients with hearing loss and need for interventional studies to reduce these effects and study causes that lead to these effects

Sources of funding: This research did not receive funding.
Conflict of interest: The authors declare no conflict of interest.

6-Reference:

1.Ribeiro UA, Souza VC, Lemos SM. Quality of life and social determinants in individual hearing AIDS users. InCoDAS 2019 Apr 1 (Vol. 31). Sociedade Brasileira de Fonoaudiologia.

2.Sibiya MN. Effective communication in nursing. Nursing. 2018 Mar 21;19:20-34.

3.Monzani D, Galeazzi GM, Genovese E, Marrara A, Martini A. Psychological profile and social behaviour of working adults with mild or moderate hearing loss. Acta Otorhinolaryngologica Italica. 2008 Apr;28(2):61

4. Muhsin, S. A. (2021). Impact of different sources of noise exposure on hearing impairment: A cross- sectional study. AL-Kindy College Medical Journal, 17(3), 163–167. https://doi.org/10.47723/kcmj.v17i3.428

5. Punch JL, Hitt R, Smith SW. Hearing loss and quality of life. Journal of communication disorders. 2019 Mar 1;78:33-45

6. Alabedi, G. A. H., & Naji, A. B. (2020). Impact of physical activity program upon elderly quality of life at Al-Amara city/Iraq. *Medico-Legal Update, 20*(3), 544–549. https://doi.org/10.37506/mlu.v20i3.1567

7. Dawood, K., & Khudhair, A. (2016). Assessment of Quality of Life for Parents of Autistic Child. Iraqi National Journal of Nursing Specialties, 29(1), 105–118. https://doi.org/10.58897/injns.v29i1.247

8. Yasser Saadoon, N. (2017). Evaluation of Adolescents' Quality of life in Hilla City. *Iraqi National Journal of Nursing Specialties, 30*(1), 2017.

9. Mussa, Y., Mohammad, M., & Abdulsahib, S. (2011). Quality of Life among Adult Patients with Peptic Ulcer in the City of Sulaimani. *Iraqi National Journal of Nursing Specialties*, *24*(1), 81–87. https://doi.org/10.58897/injns.v24i1.98

10. Gourgees, S. (2005). Assessment quality of life for patients with cerebro vascular accident. Iraqi National Journal of Nursing Specialties, 18(1), 105–125. https://doi.org/10.58897/injns.v18i1.26

11. Salih, H. S. (2016). Evaluation of Quality of Life for Secondary School Students in Kirkuk City. *Iraqi National Journal of Nursing Specialties* .

12. Ali, F., & Gorgies, S. (2005). Assessment of Asthmatic Patients' Quality Of Life in Jordan Fadel Hazza' Ali al-Mahameed.*. *Iraqi National Journal of Nursing Specialties*, *18*(2), 1–15. https://doi.org/10.58897/injns.v18i2.37.

13. Alawe, A. A. (2008). Assessment of Quality of Life for Patients with Permanent Pacemaker in Baghdad City. Iraqi National Journal of Nursing Specialties, 21(2), 90–102.

14. Hamzah, M., & Mansour, K. (2011). Quality of Life for Adult Patients with Chronic Obstructive Pulmonary Disease. *Iraqi National Journal of Nursing Specialties*, *24*(1). https://doi.org/10.58897/injns.v24i1.99.

15. Williams JM, Dorto AJ. Determination of loss of quality of life. Physical Medicine and Rehabilitation Clinics. 2002 May 1;13(2):333-5

16. Kuo PL, Di J, Ferrucci L, Lin FR. Analysis of hearing loss and physical activity among US adults aged 60-69 years. JAMA network open. 2021 Apr 1;4(4):e215484

131 .17.Trott M, Smith L, Xiao T, Veronese N, Koyanagi A, Jacob L, Lopez-Sanchez GF, Barnett Y, Pardhan S. Hearing impairment and diverse health outcomes: An umbrella review of meta-analyses of observational studies. Wiener Klinische Wochenschrift. 2021 Oct;133(19-20):1028-41.

132 .18.Holman JA, Hornsby BW, Bess FH, Naylor G. Can listening-related fatigue influence well-being? Examining associations between hearing loss, fatigue, activity levels and well-being. International Journal of Audiology. 2021 Jul 22;60(sup2):47-59 .

133 .19.Yamada M, Nishiwaki Y, Michikawa T, Takebayashi T. Impact of hearing difficulty on dependence in activities of daily living (ADL) and

mortality: a 3-year cohort study of community-dwelling Japanese older adults. Archives of Gerontology and Geriatrics. 2011 May 1;52(3):245-9

20..Maghiar MJ, Lawrence BJ, Mulders WH, Moyle TC, Livings I, Jayakody DM. Hearing loss and mental health issues in amateur and professional musicians. Psychology of Music. 2023 Mar 29:03057356231155970.open. 2021 Apr 1;4(4):e215484

21.Ciorba A, Bianchini C, Pelucchi S, Pastore A. The impact of hearing loss on the quality of life of elderly adults. Clinical interventions in aging. 2012 Jun 15:159-63.

22.Brodie A, Smith B, Ray J. The impact of rehabilitation on quality of life after hearing loss: a systematic review. European Archives of Oto-Rhino-Laryngology. 2018 Oct;275:2435-40

23.Deal JA, Choi JS, Ayonayon HN, Harris T, Helzner E, Martin KR, Mehta K, Pratt S, Rubin SM. Association of hearing impairment and emotional vitality in older adults. Journals of Gerontology Series B: Psychological Sciences and Social Sciences. 2016 May 1;71(3):400-4.

24.Nordvik O, Heggdal P, Brannstrom J, Vassbotn F, Aarstad AK, Aarstad HJ. Generic quality of life in persons with hearing loss:A systematic literature review. BMC Ear Nose Throat Disord. 2018;18:1. doi:10.1186/s12901-018-0051-6

25. Cobelli N, Gill L, Cassia F, Ugolini M. Factors that influence intent to adopt a hearing aid among older people in I taly. Health & social care in the community. 2014 Nov;22(6):612-22-

26.World Health Organization: deafness and hearing loss. (2023). Accessed: :27 February 2023 https://www.who.int/news-room/fact-sheets/detail/deafness-and-hearing-loss

27.Hameed,MD.Assessment of noise induced hearing loss(NIHL) in Wasit,Iraq Iraq:Journal of health,Medicine and Nursing;vol.15,2015

28. Krejcie RV, Morgan DW. Determining sample size for research activities. Educational and psychological measurement. 1970 Sep;30(3):607-10

29.World Health Organization. WHOQOL-BREF: introduction

administration, scoring and generic version of the assessment: field

trial version, December 1996. Geneva: World Health Organization ;

1996

30.Brenowitz WD, Wallhagen MI. Does hearing impairment affect physical function?: Current evidence, potential mechanisms, and future research directions for healthy aging. JAMA Network Open. 2021 Jun 1;4(6):e2114782[.-

31. Polku H, Mikkola TM, Rantakokko M, Portegijs E, Törmäkangas T, Rantanen T, Viljanen A. Hearing and quality of life among community-dwelling older adults. The Journals of Gerontology: Series B. 2018 Mar 2;73(3):543-52.

32. .Gispen FE, Chen DS, Genther DJ, Lin FR. Association between hearing impairment and lower levels of physical activity in older adults. J Am Geriatr Soc. 2014;62(8):1427-1433. doi: 10.1111/jgs.12938.

33.Monzani D, Galeazzi GM, Genovese E, Marrara A, Martini A. Psychological profile and social behaviour of working adults with mild or moderate hearing loss. Acta Otorhinolaryngologica Italica. 2008 Apr;28(2):61.

34. Deal JA, Choi JS, Ayonayon HN, Harris T, Helzner E, Martin KR, Mehta K, Pratt S, Rubin SM. Association of hearing impairment and emotional vitality in older adults. Journals of Gerontology Series B: Psychological Sciences and Social Sciences. 2016 May 1;71(3):400-4

35.Bigelow RT, Reed NS, Brewster KK, Huang A, Rebok G, Rutherford BR, Lin FR. Association of hearing loss with psychological distress and utilization of mental health services among adults in the United States. JAMA network open. 2020 Jul 1;3(7):e2010986.-

36.Gomaa MA, Elmagd MH, Elbadry MM, Kader RM. Depression, Anxiety and Stress Scale in patients with tinnitus and hearing loss. European Archives of Oto-Rhino-Laryngology. 2014 Aug;271:2177-84

37.Qiao-ying XI, Yan-ming CH, Xiang-Chun HU. Anxiety and influencing factors of laborers with high frequency hearing loss. Journal of Environmental and Occupational Medicine. 2015;32(2):140-2

38.Sogebi OA, Oluwole LO, Mabifah TO. Functional assessment of elderly patients with hearing impairment: A preliminary evaluation. Journal of Clinical Gerontology and Geriatrics. 2015 Mar 1;6(1):15-9

39. Cetin B, Uguz F, Erdem M, Yildirim A. Relationship between Quality of Life, Anxiety and Depression in Unilateral Hearing Loss. Journal of International Advanced Otology. 2010 May 1;6.(٢)

.40.Rutherford BR, Brewster K, Golub JS, Kim AH, Roose SP. Sensation and psychiatry: linking age-related hearing loss to late-life depression and cognitive decline. American Journal of Psychiatry. 2018 Mar 1;175(3):215-24.

41. Aryal S, Bhattarai B, Prabhu P, Bhattarai B. Impact of hearing loss on the quality of life in adults with hearing impairment. Nepalese Medical Journal. 2022 Dec 30;5(2):597-601

42. Sanhueza I, Manrique-Huarte R, Calavia D, Huarte A, Manrique M. Hearing impairment and quality of life in adults with asymmetric hearing loss: benefits of bimodal stimulation. The journal of international advanced otology. 2019 Apr;15(1):62.