



# Hearing Loss A Triggering Factor to Depression: A Systematic Review

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## Abstract

**Introduction:** Hearing loss is a hidden disability that affects the hearing ability of an individual and makes it difficult to recognize or discriminate the various auditory signals. People who usually suffer from hearing loss tend to exhibit heterogeneous characteristics comprising of diverse and complex psychosocial behaviours which includes resentment, hostility, rejection and subtle denial resulting to a significant deterioration on socio-emotional development which could ultimately lead to serious mental illness like depression.

**Objective:** Present review study was conducted to assess the comprehensiveness and trend of various other studies related to impact of hearing loss in individuals leading to depression by assembling diversified online data bases from various sources.

**Methods:** To conduct this systematic review, a thorough search was framed across multiple databases which was based upon exploration of five facets ("hard of hearing", "stress and symptoms of depression", "depression", "hearing impairment" and "deaf" and). Almost five electronic databases, key texts and references in the articles were identified and critically analysis was done for those articles that had information regarding "hearing loss" and "depression".

**Results:** Data accumulated from the databases indicated that hearing loss is a leading factor to depression which has a strong association with the onset and degrees of hearing loss, that acts as a major correlate of depressive symptoms among the geriatric population.

**Conclusion:** Studies show that there is a considerable propensity for depression among individuals with hearing loss which can also induce suicidal thoughts. Therefore, there should always be an interdisciplinary team approach to establish a well- defined intervention plan for individuals who suffer from hearing loss resulting in mental illness.

**Keywords:** Hearing loss; Depression; Mental illness

## Introduction

Mental health is a condition that has an intensive impact on the general wellbeing of an individual as a whole. It actually acts as reflection which provides a sense of satisfaction to an individual or to the society. In other words, it predetermines how an individual respond to societal issues, inter and intrapersonal relationship in social context. However, when a concern regarding mental health status arises, it becomes a serious threat for the individual or to the entire society. The associated result of the mental health issue can be disastrous most especially at adolescence and adulthood [1]. Based on Sommers' survey [1], the effect of hearing loss on mental health among individuals with hearing loss becomes evident when disability starts effecting the communicative skills which in turn

becomes a serious concern. Hearing loss basically includes those who group of individuals who are Deaf and/or Hard of hearing. In other words, the inability to perceive or comprehend any kind of auditory/verbal stimulus as compared to individuals with normal hearing ability has an extensive impact on psychosocial development of individuals with hearing loss. The most crucial effect in the life of an individual with hearing loss is incompetent to follow verbal instructions, and this limits the potentiality to develop speech and language skills which is the essential for communication thus having a cascading effect every aspect of human life including emotional and social development, family interconnectedness, social competence and over all perceived

quality of life [2]. Current research studies indicate that persons with hearing impairment tend to exhibit more behavioural and social problems as compared to normal peers [3,4], they frequently experience a greater deal of psychosocial challenges with reduced satisfaction, lack of interests in physical and other recreational activities [4]. Individuals with varying types of hearing loss also tend to show increased rate of being withdrawn or isolated [5,6]. Moreover, in such population access to incidental learning is often confined because of difficulties in communication and the level hearing loss per se. These individuals may often reflect difficulties in cognitive activities like abstract thinking and tasks related to problem-solving [7], ability to form social relationships, very low self-esteem [8] and resulting in high psychological distress causing stress or depression [9]. As mentioned earlier, individuals with hearing loss also have risks related to health and environmental hazards, more prone to maladjustment in social environment, sleep disturbances/insomnia and feasibility of inducing depressive symptoms when compared to normal hearing population [10].

According to World Health Organization [11], depression is regarded as a serious mental condition which affects an individual with notable depressed mood, displeasure, feelings of guilt and reduced self-worth, decreased energy, disturbed sleep, loss of appetite, and poor concentration. Additionally, there is a close relationship between symptoms of anxiety with depression which could result in substantial comorbid conditions that may negatively influence on everyday responsibilities. Studies have also revealed that slowed responses, tearfulness, loss of appetite, as well as sleep problems, loss of interest or societal withdrawal from family and friends are indicative of depressed individual with hearing loss [12]. Depressive disorders at adult stage is considered as a precursor from the most susceptible age range especially during adolescence [13,14]. Kim-Cohen et al. [15] conducted a study among 1,037 individuals who had history of depression and results indicated that only 25% of participants had suffered from depression at adulthood while 75% of adults who met the criteria for major depression, had an significant history of depressive disorder in childhood or adolescence. A similar kind of study was conducted by Moffitt et al. [16], which revealed that the prevalence of major depressive disorders ranges from 10%-17% in early adulthood period with more depressive symptoms observed in women as compared to men [17]. In other words, symptoms of

depressive disorders starts to evolve between 4-5% during early teenager age period especially more common in girls due to the pubertal physical reformation which is much self-evident than in boys [18]. Various research studies also state that incidence of psychopathology in children and adolescents tends to be higher depending on the various degrees of hearing loss [19]. But still, there is still controversial discussions as there in lack of studies that can mention the exact age period of depression as other factors associated with depressive symptoms among adolescence seems vary from individual to individual [20,21]. According to World health Organization [22] depression is one of the leading causes of disability with a 50% higher rate among women than men. It also co-exists or emerge due to other disabling conditions for persons with hearing loss. Research studies also indicate that individuals with hearing loss most especially African Countries Individuals with hearing loss suffer more from depression and psychosocial issues [23], poor academic achievement [24,25], delay in speech and language acquisition [26]. Based on the fact that individuals with hearing loss are more susceptible to having mental health problems due to their inability to communicate with the hearing world. This review study aims to determine the extent of studies which are being conducted on depression and depressive symptoms among persons who are suffering from hearing loss which are based on the open access. Moreover, this study will provide an insight on the regarding the impact of hearing loss on mental health among persons with hearing loss across various countries.

## Method

A comprehensive review of articles on 'depression' and 'hearing loss' or hard of hearing and/or deafness reflected in respective research title were identified and considered for the selected study. However, such article must be completed and published from 2010 up to May 2019. The studies incorporated in the present review were identified by keyword searches from various database sources like PubMed data, Science Direct, and the widely accepted web using Google Scholar. Only those articles which were written in English language was identified and analysed for the current study [27-39]. The search was also extensively done by include other expandable keywords like 'depressive symptoms' and 'Mental Health and Deafness', 'Effect of depressive symptoms and Onset of hearing loss'. A The relevant articles searched and considered are presented below (Table 1).

**Table 1.**

Author(s)	Year/ Place of Publication	Paper title	Type of study	Participants	Results
Nkyekyer et al. [27]	2019, Australia	The cognitive and psychosocial effects of auditory training and hearing aids in adults with hearing loss	Pilot study	A total of 40 participants aged 50-90 years were given questionnaires related to cognition and health	Hearing loss adversely affects cognition and mental health which can be improved by providing better hearing amplification device.
Simning et al.[28]	2018	Depressive and Anxiety Symptoms in Older Adults with Auditory, Vision, and Dual Sensory Impairment	Cross-sectional	A total 7,507 older adults from the National Health and Aging Trends were selected for the study	Auditory, vision, and dual impairment is strongly associated with an increased risk for depressive and anxiety symptoms.

Shin & Hwang [29]	2017, Korea	Mental Health of the People with Hearing Impairment in Korea: A Population-Based Cross-Sectional Study	Survey	18,563 individuals (6,395 with hearing impairment and 12,168 without hearing impairment), aged $\geq 20$ years	The female participants with hearing impairment indicated to have a higher rate of stress with suicidal attempt was higher in elderly females.
Zamora-Vega et al. [30]	2016	Association between depression and hearing loss in patients with type 2 diabetes	Cross-sectional analytical study	150 patients with type 2 diabetes (76% women and 34% men)	Patients with diabetes having hearing loss were at higher risk of depression.
Castiglione et al. [31]	2016	Aging, cognitive decline and hearing loss: Effects of auditory rehabilitation and training with hearing aids and cochlear implants on cognitive function and depression among older adults.	Quasi-experimental study	125 total participants were selected (105 with hearing impairment and 20 without hearing loss)	Significant improvement was observed after auditory training on cognitive tasks, level of depression and cognitive status scores also showed positive results. Amplification devices such as Cochlear implants or hearing aids showed better effectiveness among older adults (median age of 74 years) with different degrees of hearing loss in terms depression and cognitive performance
Dawas et al. [32]	2015	Hearing loss and cognition: The role of hearing aids, social isolation and depression	Correlational study	164,770 participants from (40 to 69 years)	The study recorded better cognition, independently of social isolation and depression among hearing aid users.
Li, et al. [33]	2014, USA	Hearing impairment associated with depression in US adults, National Health and Nutrition Examination Survey 2005–2010	Descriptive survey study	18318 subjects aged 18 years or older.	Hearing impairment and depression among all participants was significantly associated, increased risk was seen among women than male subjects.
Rostami, et al. [34]	2014, Iran	Depression and Deaf adolescents: A review	Review study		Depressive symptoms tend to be more prevalent in the deaf than in hearing students
Prakash et al. [35]	2013, India	Measuring levels of stress and depression in Mothers of children using hearing aids and cochlear implants: A comparative study	Comparative nature of study	50 Mothers of children with bilateral severe to profound sensorineural hearing loss	The findings of the study indicated that stress and depression levels are higher among mothers of children with hearing loss who use amplification devices in comparison to the mothers of children using cochlear implants users.
Garnefski et al. [36]	2012	Cognitive coping and goal adjustment are associated with symptoms of depression and anxiety in people with acquired hearing loss	Cross-section study	119 individuals with moderate to profound degree of hearing loss	The study revealed serious concern of implementing coping strategies which were related to the symptoms of depression and/or anxiety among the participants in the study.
Millán-Calenti et al. [37]	2011	Relationship between sensory hearing loss and depression in elderly people: A literature review	A review study		Quality of life among elderly persons with hearing loss was significantly affected by communication difficulties which restricted the social participation and effective communication skills.
Theunissen et al. [38]	2011	Depression in hearing-impaired children	Descriptive survey research	27 children with cochlear implants, 56 children with conventional hearing aids, and 117 normally hearing children.	Depressive symptoms were reported more among children with hearing loss compared to normally hearing peers.
Lee et al. [39]	2010, China	Hearing impairment and depressive symptoms in an older Chinese population	Cross-sectional study	914 Community-dwellers who were aged 60 years	An association was found between depression and hearing loss in older Chinese.

## Discussion and Conclusion

Hearing loss is a hidden disability that has an immense negative impact in the quality of life among individuals of any age group from neonates to older adults. Hearing loss irrespective of any

degree or configuration plays a role in compromising acquiring communication skills, education, social functioning of the individual. It is the greatest handicap which revolves around the development of speech and language skills; however, because hearing loss is

a masked disability, it often neglected, when associated health issues are also present. It may have hazardous effect for overall development of an individual [40]. Oyiborhoro concluded in the study that the difficulties faced by children with hearing loss can extend beyond the academic area which can interfere in the entire social and emotional development resulting in various emotional which can persist even till adulthood [41]. Studies have also indicated that persons with hearing loss found often tend to face situations related to physical abuse, illness or additional disability, as well as feeling withdrawal or isolation from family [42-44]. This review was conducted to highlight the trend of research and trace the effect of hearing loss on depression on individuals with hearing loss. The review also throws light on the associated factors which predispose the depressive symptoms among the Deaf and/or hard of hearing that may lead to suicidal attempts among persons with hearing loss. Hence, when planning an intervention programme for a person with hearing loss should consist of a team which must include audiologist along with psychologist, psychiatrist, sign language interpreters and other professionals. In future, various other similar studies can be conducted by other professional dealing with mental health research and should beam the light on depressive symptoms among persons with hearing loss. Such future studies should also consider the various diversities among persons with hearing loss that will provide the actual evidences and also provide an insight on the prevalence of depression and its symptoms among persons with hearing loss across the world. Apart from these evidences, studies should also focus more on children and adolescents with post-lingual hearing loss while audiologist and the entire team consisting of psychologist should not presume or infer any depressive symptoms among persons with hearing loss without proper intervention.

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