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HEARING LOSS, TINNITUS AND MENTAL HEALTH

A literature review

By Laura Matthews

Introduction

We regularly receive anecdotal evidence about the negative impact that hearing loss can have on mental health. This paper provides an overview of the research investigating the links between hearing loss and mental health problems. This is a summary of the key themes identified, not an exhaustive look at the literature.

This paper will start with definitions of hearing loss, tinnitus and mental health before going on to consider prevalence rates for mental health problems amongst people with hearing loss and/or tinnitus. The second half of the paper will provide an overview of various risk factors identified in the literature associated with hearing loss, tinnitus and mental health.

Definitions

Hearing loss and deafness

These terms are used interchangeably throughout the document, unless specified. The level of hearing loss can vary from mild to profound. An individual's preferred method of communication will also vary, with some able to use hearing in combination with lipreading; others may rely completely on lipreading or use sign language.

Tinnitus

The word tinnitus is the medical term for any noise that people hear with no external source. It usually presents as a ringing sound although some people hear other types of sounds.

Mental health

According to the mental health charity Mind, mental health covers a range of symptoms and diagnoses such as depression, anxiety, obsessive compulsive disorder, phobias, bipolar disorder, schizophrenia, personality disorders and eating disorders¹.

The World Health Organization (WHO) suggests a broader definition: "Mental health is not just the absence of mental disorder. It is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community."²

1 Mind (2012) www.mind.org.uk

2 Available on the online WHO Q&A, 'What is mental health?' <http://www.who.int/features/qa/62/en/index.html>, accessed 25/06/13

Prevalence and links

Hearing loss affects more than 10 million people in the UK. By 2031 this will have increased to 14.5 million. From the current total, around 6.4 million are of retirement age (65+) and about 3.7 million are of working age (16 - 64). There are more than 45,000 deaf children in the UK, half of whom are born deaf; the remainder develop hearing loss in childhood. More than 800,000 people have severe to profound hearing loss.

Tinnitus is a widespread condition, The British Tinnitus Association estimates that 10% of the UK population experiences tinnitus frequently, and 5% of the UK population experiences persistent or troublesome tinnitus. Up to 1% of adults have tinnitus that affects their quality of life (BTA 2001).

According to the Department of Health (DH) (2011) mental health problems are the largest single source of disability, accounting for 23% of the total disease burden. Worldwide, around “450 million people suffer from mental and behavioural disorders... One person in four will develop one or more of these disorders during their lifetime” (WHO 2001).

A report by the NHS Health Advisory Service (1998) found a higher incidence of emotional, behavioural and adjustment disorders among people who are deaf than those who are hearing. Deaf people were also more likely to suffer from a personality disorder or behaviour or adjustment problems than the general population. Davidson et al (2005) found deaf people are more likely to misuse alcohol and drugs.

Some research discusses the links between hearing loss and mental distress, which can include a wide range of symptoms such as anxiety, depression and confusion. In the Netherlands, De Graaf and Bijl (2002) found indication of mental distress amongst 28% post-lingually³ deaf men and 43% amongst post-lingually deaf women, compared with 22% and 27% in the general population.

Research has identified specific links between hearing loss and depression (Leigh et al 1989; Tomita et al 2001; Gilhome et al 1980; Thomas 1984; Saito et al 2010). Thomas (1984) found that the prevalence of significant anxiety and/or depression was four times greater amongst people with hearing loss than the population average. Leigh et al (1989) found more than 50% of their research participants were classified as mildly depressed. However, the research is contradictory in terms of links between the severity of the hearing loss and the severity of the depression. Both Gilhome et al and Leigh et al did not find a link with severity, whereas Thomas found the psychosocial impact of hearing loss did increase with severity. More recent research in Japan has found that older people with hearing loss are 2.5 times more likely to develop depression than those without hearing loss (Saito et al 2010).

³ Hearing loss develops after the acquisition of speech and language.

Tinnitus is also associated with a higher occurrence of depression than the general population (Holmes and Padgham 2009). In 2006, RNID conducted qualitative research and found a minority of participants said their tinnitus had a major impact on their lives. In these cases, participants found the tinnitus extremely distressing and it had an impact on multiple areas of their lives. Lewis et al (1992) undertook research which found pulsatile tinnitus may have been a risk factor in the deaths of six case studies.

However, it is unclear whether tinnitus is a result of a depressive disorder or a factor contributing to its development. Daugherty (2007) suggests at least 40-60% of patients with tinnitus also have a major depressive disorder, which often worsens their perception of the condition. In a study undertaken by Andersson et al (2005), tinnitus preceded the mood disorder in 23.5% of the sample and, in 21% of cases, these symptoms arose concurrently.

Andersson et al (2005) reviewed many research studies concerning the mental health impact of tinnitus. They state “all these studies have in common that a remarkably high percentage of psychiatric disturbances have been found, well above what is found in the general population. However, in all studies it is very likely that selected sample groups are not representative of the whole tinnitus population” (p95). They also suggest that, when all of the literature is taken together, they do not tend to support the view that tinnitus is associated with a high risk of suicide. However, for some patients with tinnitus, it may increase the risk of suicide when combined with other problems. Holmes and Padgham (2009) agree that the causal link between suicide and tinnitus is tenuous and most cases are associated with other mental health problems.

Risk factors

The literature identifies numerous risk factors associated with mental health problems combined with hearing loss and tinnitus.

1. Hearing loss - factors related to the hearing loss itself, such as severity or the age at which it happened.
2. Provision of mental health services - how accessible are the services and is there specialist provision for sign language users.
3. Social factors - such as family and social support networks and employment.
4. Age - of the individual with hearing loss: they may be at greater risk of some mental health problems at particular times in their life.

This review will discuss the research in each of these areas.

1) Hearing loss

Pre-lingually deaf people

Numerous studies have been conducted over the past 40 years looking specifically at people who are born deaf or who have lost their hearing very early in life, known as pre-lingually deaf. These studies have shown that pre-lingually deaf people are at no greater risk of schizophrenia than the general population, and are less likely to be diagnosed with a psychotic or substance abuse disorder (Cooper 1976). However, they are more likely to be diagnosed with a mood, anxiety, personality or developmental disorder (Black and Glickman 2006). Their psychosocial functioning (such as social interaction and ability to maintain relationships) was similar to hearing patients.

Deafened adults

David and Trehub (1989) define 'deafened' as acquiring profound hearing loss in adolescence or adulthood. Acquired profound hearing loss affects around 150,000 people in the UK (Davis 1995). Deafened people generally have a reliance on lipreading to communicate and rarely use sign language (Hallam et al 2006).

Deafened people can lose their hearing gradually, or in stages, or they can suffer a complete loss of hearing. Those who lose their hearing gradually may delay in taking decisions about their method of communication, and they may have an extended period of denial (David and Trehub 1989). This can therefore be extremely stressful. They may also be dealing with an identity shift, from being a hearing person to a deaf person (Woodcock and Aguyao 2000). In one study, people with acquired deafness had a higher risk of suffering from paranoid symptoms, with the deafened person feeling increasingly vulnerable and isolated, often uncertain about what is happening (Eastwood et al 1985).

Those who lose their hearing suddenly are forced to take decisions quickly about how they will communicate in future, and do not have the option of denial. This is likely to be extremely traumatic. Woodcock and Aguyao (2000) suggest that some people may suffer a bereavement reaction. They argue that losing your hearing could be compared with losing a loved one, in that adjustment is dependent on support from others. However, in the case of hearing loss, this interferes with communication and, therefore, the support is not necessarily available.

David and Trehub (1989) suggest numerous issues that deafened people face which, they argue, is similar to a catastrophic life event:

- Complete loss of a sense they depend upon
- Unable to interact freely with friends and family
- Loss of status in the workplace
- Suffer from grief, anger and anxiety
- May become isolated.

Research by Hallam et al (2006) supports this, finding a greater psychological effect of acquired profound hearing loss (APHL) than acquired hearing loss (AHL). Their research highlighted a sub group of people who are “deeply affected or even traumatised”. Hallam et al (2006) suggest that future research could be directed at “clarifying the additional handicaps, coping styles, and other features that characterise this sub-group” (p722).

Link, the centre for deafened people (now Hearing Link), and the University of Greenwich undertook qualitative and quantitative research in 2005 to examine the psychological and social impact of becoming deafened in adult life. The research found higher levels of mental health problems in the deafened participants, including depression and anxiety.

“Compared with the UK population, the rate of depression in our deafened participants was nearly five times higher, and in their hearing partners, just over four times higher. Rates for severe anxiety in our deafened participants were nearly two and a half times greater than the UK average, and for partners, over one and a half times greater.” (Link 2005, p5).

Research participants were facing numerous issues including relationship breakdown, loss of employment and problems with communication. Some participants also showed signs of post-traumatic stress disorder. However, the participants were mainly recruited through Link’s services and, therefore, are likely to be people who have the highest levels of need and distress.

Unaddressed hearing loss

Some studies of people with unaddressed hearing loss have found that those who do not use hearing aids or have a cochlear implant, have poorer outcomes than those who do use hearing aids. These include poorer quality of life (Apollonio et al 1996; Mulrow et al 1990) or depression (Cacciatore et al 1999). Research by Chia et al (2007) found that bilateral hearing impairment associated with poorer social functioning (SF36⁴) scores in both physical and mental domains. Those who always used hearing aids scored slightly better than those who did not have hearing aids or only wore them occasionally. The impact increased with the greater the severity of the hearing loss. However, they were unable to draw a causal relationship. The 10-year delay in seeking help with hearing loss (Davis 1995) is, therefore, likely to increase the risk of people developing mental health problems.

A study of non hearing aid wearers by Monzani et al (2008) found that people with acquired hearing loss report, on self-administered psychometric rating scales, higher levels of disability and of psychological distress, and lower levels of social functioning than the control population. Hearing-impaired individuals in the study were involved in fewer social activities, experienced increased relational problems with family and friends, and greater emotional difficulties at work.

Tomita et al (2001) found depression can impact upon a person's motivation to use a hearing aid. Du Feu and Fergusson (2003) also suggest that people who are in denial about their hearing loss will not make adjustments, such as getting hearing aids or using other equipment, and, therefore, they may be at risk of mental health problems. Our previous literature review, focusing on rehabilitation and hearing aids, found rehabilitation is effective in increasing hearing aid use and reducing self-perceived hearing handicap.

2) Provision of mental health services

It is important for any person with a mental health condition to be effectively supported. However, people with hearing loss face extra barriers to obtaining this support. Dewane (2010) discusses the lack of psychological help for people with hearing loss:

“Helping an older adult grieve and find meaning in the loss of hearing is therapeutically crucial. Rarely are hearing-impaired elders given permission to express the felt, perceived, and feared losses they associate with this physical limitation. Physicians or audiologists who address that level of emotional identification and support are uncommon. In fact, it is rare that ear, nose, and throat specialists or audiologists talk to patients about the psychological results of hearing loss.” (p18).

This lack of support was identified in the RNID report *Seen but not Heard* (Matthews 2011) which recommends the need for personalised rehabilitation to support individuals and their specific needs.

4 A self-administered 36-item, short-form, health survey

For problems related to hearing loss, such as the isolation and depression caused by communication difficulties, hearing therapists would be the obvious support mechanism. On the NHS Careers⁵ website, they describe a hearing therapist's role as "to provide a comprehensive rehabilitation service for adults who have hearing difficulties and/or associated disorders." This includes support with hearing aids, counselling and advice. Hearing therapists are normally available through audiology and ENT departments. However, recent research into NHS trusts in England has found that around a quarter do not provide any hearing therapist or referral to a hearing therapist (Calton 2012).

People with hearing loss face barriers in accessing mental health support. For most people with a mental health problem, the GP is their first point of contact (Rankin 2005). However, many deaf people experience communication difficulties with their GP; quite a few people avoid going to the GP altogether because of these communication problems (RNID 2004; Ringham 2013). This raises the issue of how mental health problems are detected, especially at an early stage, and how deaf people are referred to appropriate mental health services.

For deaf people with a more serious mental health problem, the literature identifies numerous problems in accessing services. Prior to 2006, numerous inquiries were undertaken following homicides committed by profoundly deaf people. Forging New Channels (NHS Health Advisory Service 1998), Sign of the Times (DH 2002) and Towards Equity and Access (DH 2005) all highlighted the restricted access of deaf people to mental health services and the patchy provision of specialist mental health services to deaf people.

Local service providers or specialist mental health services are often inadequately equipped to support deaf people. Hearing staff may be uncomfortable working with deaf people due to unfamiliarity and limited understanding of communication methods (Glickman and Gulati 2003). Mental health professionals are often not deaf aware, and do not understand deaf culture and the barriers that deaf people face in society (DH 2002; RNID 2004; Glasgow Caledonian University 2009). Clear communication is vital and, therefore, direct communication is often preferred over communication through an intermediary. However, there are very few BSL-fluent mental health workers, BSL interpreters or qualified lipspeakers who have the skills and experience to work in mental health (du Feu and Fergusson 2003; Glasgow Caledonian University 2009). Failures in communication support like these mean that people with hearing loss are deprived equal access to care. These barriers in accessing services means that mental health services are underused by deaf and deafblind people (Glasgow Caledonian University 2009).

Specialist mental health services for deaf people in the UK do exist, though not as a comprehensive chain of mental health care. In 2006 only three mental health trusts provided services to deaf people in any significant way, leaving significant gaps in provision for people with hearing loss and mental health problems.

5 www.nhscareers.nhs.uk, accessed 25/06/13

This lack of specialised care means deaf people remain in-patients for between two to four times longer than hearing patients (Timmermans 1989; Appleford 2003; Baines et al 2012). Baines et al (2012) found that this was not necessarily due to clinical reasons, rather it was due to a lack of appropriate community support and rehabilitation. Deaf people are also more likely to be misdiagnosed by medical professionals (DH 2005; Du Feu and Fergusson 2003). Inexperience of working with deaf people and assumptions made by health professionals, as well as misunderstandings from inadequate communication, may mean that a deaf person is placed in secure provisions or enters the criminal justice system (DH 2005). This has severe implications for the quality of life of deaf people and their families, as well as resource implications for public services.

3) Social factors

The barriers that deaf people experience in their daily lives: in education, employment, and in the community, all have adverse effects on their mental health, which in turn exacerbates the problems that they experience, according to a report by the Social Exclusion Unit (2004). People who lose their hearing later in life are at greater risk of social withdrawal due to frustrations in communicating with friends and family (du Feu and Fergusson 2003; Echaliier 2010). RNID research found that the partner of someone with hearing loss could experience loneliness and withdrawal (Echaliier 2010), although research by Ask et al (2009) found no severe loss of mental health in partners of people with hearing loss.

Other research, conversely, suggests that social factors can have a protective impact on mental health. For example, Ringdahl and Grimby (2000) found that people with hearing loss generally had lower energy levels, distress and social isolation, except those people who were working full time. Employment may, therefore, provide a level of protection against mental health problems. Du Feu and Fergusson (2003) suggest other people's deaf awareness can also have a positive impact on mental health, as well as the use of aids such as visual display screens and flashing smoke alarms.

Du Feu and Fergusson (2003) also found people who are part of the deaf community and/or have a deaf family member(s) are, to some extent, protected from mental health problems due to the support network available. "People from deaf families, who form the core of the deaf community, and many deaf people from hearing families, find confidence, support, self-esteem and a positive identity within the community and this has a protective effect on mental health." (p95).

4) Age

The age of the person with hearing loss can have some impact on mental health issues. One study found that deaf children have an increased prevalence of mental health problems: 45-50% compared with an average of about 25% for the general population (Hindley et al, 1994; Hindley, 2000). The researchers suggest this could be due to physical problems associated with the cause of the deafness, or possibly delays in accessing services.

Another study found that self-esteem problems were more prevalent in younger people with hearing loss (Tambis 2004). The author suggests this may be because hearing loss is considered 'normal' amongst older people. The study also found other effects of hearing loss, such as anxiety and depression, decreased with age. However, Du Feu and Fergusson (2003) argue that people who became deaf in adult life usually consider this in purely negative terms and, so, are unlikely to benefit from the support of the deaf community, as they do not learn sign language.

A report by the NHS Health Advisory Service (1998) found paranoid syndromes were a feature among elderly people who acquire deafness. Several studies mention the connection between hearing loss and isolation, particularly in relation to older people. Ringdahl and Grimby (2000) found people with hearing loss had lower energy levels and greater distress and social isolation than the general working population. RNID research has also highlighted that people with hearing loss withdraw from social activities due to problems in communicating (Echalier 2009; 2010). Depression, like hearing loss, may also be seen as an inevitable part of ageing and, therefore, older people may not be getting the treatment and support they need (Beekman, Copeland and Prince 1999).

Isolation is a growing area of interest for the government and policymakers. The prevalence of hearing loss increases with age. According to a report by Age UK (2009):

- 12% of older people feel trapped in their own homes
- Nearly 200,000 older people in the UK have no help to get out of their house or flat
- 17% of older people are in contact with family, friends and neighbours less than once a week and 11% are in contact less than once a month
- Over half of all people aged 75 and over live alone
- Half of all older people say that the television is their main form of company.

Conclusion

The research demonstrates a relationship between hearing loss and mental health, as well as tinnitus and mental health. Whilst the prevalence of some mental health problems is higher amongst people with hearing loss and/or tinnitus, there is little evidence to indicate causality. Further research into the links between hearing loss and mental health problems would be useful in order to obtain a better understanding.

Mental health outcomes in people with hearing loss are influenced by a range of factors, though some of the research is disputed or contradictory. Overall, the risk of mental health problems in people with hearing loss is increased due to:

- Losing hearing post-lingually, in particular, people who have been deafened
- Poor social and support networks
- Age of the person with hearing loss (different mental health problems are prevalent at different ages)
- The hearing loss not being effectively managed with hearing aids or cochlear implants

The research also demonstrates significant barriers to people with hearing loss accessing the support they need:

- Inaccessible services such as staff who are not deaf aware and a lack of communication support
- The first language of the individual, with BSL users often at a disadvantage when accessing mental health services
- Little recognition by audiology services of the need to support people with hearing loss emotionally.

The findings recommend various support mechanisms to reduce the risk of mental health problems. These include:

1. Supporting individuals to accept and manage their hearing loss

The research indicates that people with unaddressed hearing loss have worse outcomes than people who make use of hearing aids/cochlear implants. It is important, therefore, that people with hearing loss are supported to accept and manage their hearing loss. This is particularly important for deafened people, who are at risk of experiencing a more traumatic reaction to their hearing loss. Hearing services and audiology units, therefore, must recognise the emotional impact of hearing loss and provide effective support to minimise this.

2. An effective, holistic rehabilitation process for people with hearing loss. This should include the provision of hearing aids and cochlear implants, access to communication training and lipreading classes, as well as emotional support, for example, through hearing therapists

The research highlights the benefits of dealing with hearing loss. It is important, therefore, that a thorough rehabilitation process is offered to everyone, so hearing loss can be effectively managed, both physically and emotionally.

3. Ensuring mental health services are accessible to people with all levels of hearing loss, regardless of their first language

People with hearing loss who have mental health problems must be able to access services to support them. GPs need to be deaf aware, and accessible specialist mental health services and staff need to be available, as well as staff who can communicate fluently in sign language. The communication needs of deaf BSL users must be recognised, and action taken to ensure they are met, with interpreters who have the skills and experience to work in mental health.

4. Encouraging social and support networks and preventing isolation for people with acquired hearing loss

Research shows that people with hearing loss are at risk of withdrawing from society. This leads to isolation and depression. A strong social network and having employment can provide a protective effect from mental health problems.

By improving these support mechanisms, people with hearing loss could enjoy a higher quality of life, and face fewer mental health problems. Free hearing aids and cochlear implants are already available on the NHS and it is important that we encourage people to take up these services, as well as to ensure that they receive the right support from hearing services. Our Hear to Help services support people with managing their hearing loss effectively; however, this service is not currently available in all areas.

Hearing services must also recognise the emotional impact of hearing loss and take steps to deal with this problem. Hearing therapists would appear to be the obvious support mechanism for people with hearing loss. The NHS Careers website describes a hearing therapist's role as "to provide a comprehensive rehabilitation service for adults who have hearing difficulties and/or associated disorders." This includes support with hearing aids, counselling and advice. Hearing therapists are normally available through audiology and ENT departments. We are concerned, however, that in the current economic climate, hospitals may be cutting their hearing therapy services. Our recent research of NHS trusts has found that around a quarter do not provide any hearing therapist or referral to a hearing therapist.

Reducing isolation is important, and must include supporting people with their communication skills, providing effective rehabilitation and encouraging people to develop and build up their social networks. Our Hear to Meet services have been designed to support this aim, and though it is a very popular service, we do not currently have any research on the effectiveness of this service in supporting mental health problems specifically. The attitudes of others, however, is also key: we need the general public to be deaf aware and comfortable in communicating with people with hearing loss. Isolation is becoming a key policy issue for the government and, therefore, it may be an ideal opportunity to consider further the relationship between hearing loss and isolation.

References

- Age Concern (2007) Improving services and support for older people with mental health problems: The second report from the UK Inquiry into Mental Health and Well-Being in Later Life.
- Age UK (2009) Safeguarding the Convoy. Oxfordshire: Age UK.
- Aguayo, M. and Woodcock, K. (2000). Deafened people: adjustment and support. Toronto: University of Toronto Press.
- Andersson, G., Baguley, D.M., McKenna, L. and McFerran, D. (2005) Tinnitus: A multidisciplinary approach, Whurr Publishers: London.
- Appleford, Jim (2003) Clinical activity within a specialist mental health service for deaf people: comparison with a general psychiatric service. *Psychiatric Bulletin* (2003) vol. 27: 375-377.
- Appollonio, I., Carabellese, C., Frattola, L., Trabucchi, M. (1996) Effects of sensory aids on the quality of life and mortality of elderly people: a multivariate analysis. *Age and Ageing* 25: 89-96.
- Ask, H., Krog, N.H. and Tambs, K. (2009) Impact of hearing impairment on spousal mental health: the Nord-Trøndelag Health Study. *European Journal of Public Health*, Vol. 20, No. 3, 271-275.
- Baines, D., Patterson, N. and Austen, S. (2012) An investigation into the length of hospital stay for deaf mental health service users, *Journal of Deaf Studies and Deaf Education*, 15:2 Spring 2010.
- Barton, G.R., Bankart, J., Davis, A.C. (2005) A comparison of the quality of life of hearing impaired people as estimated by three different utility measures, *International Journal of Audiology*, 44: 157-163.
- Beekman AT, Copeland JR, Prince, MJ. Review of community prevalence of depression in later life. *Br J Psychiatry* 1999;174: 307-11.
- Black P.A, Glickman N.S. (2006) Demographics, psychiatric diagnoses, and other characteristics of North American Deaf and hard of hearing inpatients. *J Deaf Stud Deaf Educ* 2006, 11(3):303-321.
- British Tinnitus Association 2001. 'Facts and Figures', www.tinnitus.org.uk/facts-and-figures, accessed 19/02/2013.

- Cacciatore, F., Napoli, C., Abete, P., Marciano, E., Triassi, M. and Rengo, F. (1999) 'Quality of life determinants and hearing function in an elderly population', *Gerontology* 45: 323-328.
- Calton, R. (2012) *Cut off: Assessing provision of adult audiology services and the impact of budget cuts*. Action on Hearing Loss, London.
- Chia E.M., Wang J.J., Rochtchina E., Cumming R.R., Newall P., Mitchell P. Hearing impairment and health-related quality of life: The Blue Mountains Hearing Study. *Ear Hear* 2007;28:187-95.
- Clausen, T. (2003). *When hearing fails*. Copenhagen: Socialforskningsinstituttet (in Danish)
- Cooper A.F. (1976). Deafness and psychiatric illness. *The British Journal of Psychiatry*, 129: 216-226.
- Dalton, D.S., Cruickshank, K.J., Klein, B.E.K., Klein, R., Wiley, T.L. and Nondahl, D.M. (2003) The impact of hearing loss on quality of life in older adults, *The Gerontologist*, Vol 43, 5, 661-668.
- Daugherty, J.A. (2007) The latest buzz on tinnitus, *The Nurse Practitioner*, vol 32, no 10
- David, M and Trehub, S. (1989). Perspectives on deafened adults. *American Annals of the Deaf*, 134, 200-204.
- Davidson, Bruce, Miller, Helen and Kenneth, Sylvia (2004) Substance use disorders and developing substance use services for deaf people. In: *Deafness in Mind*
- Davis, A. (2005). *Hearing in adults*. London: Whurr.
- Dewane, C. 2010. Hearing Loss in Older Adults – Its Effect on Mental Health. *Social Work Today*, 10, 4, p18.
- DH (2002) *A Sign of the Times. Modernising Mental Health Services for People who are Deaf*.
- DH (2011) *Mental health promotion and mental illness prevention: the economic case*.
- De Graaf R. and Bijl R.V. (2002) Determinants of mental distress in adults with a severe auditory impairment: differences between prelingual and postlingual deafness *Psychosomatic medicine* 64:61-70 (2002).
- Du Feu, M. and Fergusson, K. (2003) Sensory impairment and mental health, *Advances in psychiatric treatment*, 9:95-103.

- Eastwood, M. R., Corbin, S. L., Reed, M., et al (1985) Acquired hearing loss and psychiatric illness: an estimate of prevalence and co-morbidity in a geriatric setting. *British Journal of Psychiatry*, 147, 552-556.
- Echalier, M. (2009) *Hidden Crisis*. RNID.
- Echalier, M. (2010) *In it together: the impact of hearing loss on personal relationships*. RNID.
- Edmond, F. (2010). *Unheard, Unseen*. RNID Scotland.
- Eide, A. H., & Gundersen, T. (2004) *Hearing impaired in labour market*. Oslo, Norway: SINTEF Helse rapport (in Norwegian).
- Gilhome-Herbst, K. & Humphrey, C. (1980). Hearing impairment and mental state in the elderly living at home. *British Medical Journal* 281, 903-905.
- Glasgow Caledonian University. (2009). *Scottish Mental Health Services: the experience of deaf and deafblind people*.
- Glickman, N.S. & Gulati, S. (Eds.) (2003) *Mental Health Care of Deaf People - Affirmative Approach*.
- Goldberg, D. & Huxley, P. (1992), 'Common mental disorders: a bio-social model', London: Routledge.
- Hallam, R., Ashton, P., Sherbourne, K. and Gailey, L. (2006) Acquired profound hearing loss: mental health and other characteristics of a large sample. *International Journal of Audiology* 2006; vol 45, p715-723.
- Healthcare Commission (2009) *Equalities in Later Life: A national study of older people's mental health services* [online].
- Hindley, P. (2000). Child and adolescent psychiatry. In *Mental Health and Deafness* eds P. Hindley & N. Kitson, chapter 3. London: Whurr Publishers.
- Hindley, P., Hill, P.D., McGuigan, S. & Kitson, N. (1994) Psychiatric disorder in deaf and hearing impaired children and young people: A prevalence study. *Journal of Psychiatry and Psychology*, 35, 917-934.
- Holmes, S. & Padgham, N. (2009), 'Review Paper: more than ringing in the ears: a review of tinnitus and its psychosocial impact', *Journal of Clinical Nursing*, 18, 2927-2937.
- Ishine M, Okumiya K, Matsubayashi K. (2007) A close association between hearing impairment and activities of daily living, depression, and quality of life in community-dwelling older people in Japan. *J Am Geriatr Soc*; 55:316-7.

Lagnado A., (2011) 'Feeling Good' 2-part feature in Action on Hearing Loss Magazine (August/September, October/November issue). Action on Hearing Loss, London.

Leigh I.W., Robins C.J., Welkowitz J., Bond R.N. (1989) Toward greater understanding of depression in deaf individuals. *Am Ann Deaf* 1989, 134:249-254.

Lewis J., Stephens D., Huws D. (1992) Suicide in tinnitus sufferers, *J Audiological Medicine* 1992, 1:30-37.

Lin, F.R., Yaffe, K., Jin Xia., Qian-Li Xue., Harris., T.B., Purchase-Helzner, E., Satterfield, S., Ayonayon, H.N., Ferrucci, L. and Simonsick, E.M. (2013). Hearing loss and cognitive decline in older adults. In: *Internal Medicine* <http://archinte.jamanetwork.com/article.aspx?articleid=1558452>

Link Centre. Hidden Lives. The psychological and social impact of becoming deafened in adult life. Eastbourne, UK: Link Centre <http://www.hearinglink.org/document.doc?id=100>

Matthews, L. (2011) *Seen but not heard: people with hearing loss are not receiving the support they need.* London: RNID.

Mental Health Network (2011) *Key facts and trends in mental health.* NHS Confederation: London.

Monzani, D., Galeazzi, E., Genovese, A., Marrara, A. and Martini, A. (2008) Psychological profile and social behaviour of working adults with mild or moderate hearing loss, *Acta Otorhinolaryngol Ital* 28:61-66.

Mulrow, C.D., Aguilar, C., Endicott, J.E., Tuley, M.R., Velez, R., Charlip, W.S., Rhodes, M.C., Hill, J.A. and DeNino, L. (1990) Quality of life changes and hearing impairment. *Annals of internal medicine.* 113: 188-194.

Nachtegaal J., Smit J.H., Smits C., Bezemer P.D., van Beek J.H., Festen J.M. and, Kramer S.E. (2009) The association between hearing status and psychosocial health before the age of 70 years: results from an internet-based national survey on hearing. *Ear and Hearing.* Jun;30(3):302-12.

National Council on Ageing (2000) *The consequences of untreated hearing loss in older persons,* *ORL Head and Neck Nursing,* vol 18, no 1.

NHS Health Advisory Service (1998) *Mental Health Services - Forging New Channels,* British Society for Mental Health and Deafness.

RNID (2004) *A simple cure. A national report into deaf and hard of hearing people's experiences of the National Health Service.*

Rankin, J. (2005) *Mental Health in the Mainstream.* (IPPR: London)

Ringdahl, A., & Grimby, A. (2000). Severe profound hearing impairment and health-related quality of life among post-lingual deafened Swedish adults. *Scand Audiol*, 29, 266-275.

Ringham, L. (2013) *Access all areas? Action on Hearing Loss*, London.

Saito, H., Nishiwaki, Y., Michikawa, T., Kikuchi, Y., Mizutari, K., Takebayashi, T. and Ogawa, K. (2010) Hearing handicap predicts the development of depressive symptoms after three years in older community-dwelling Japanese. In: *Journal of the American Geriatrics Society*, vol 58, 1, 93-7.

Social Exclusion Unit (2004) *Mental Health and Social Exclusion*. ODPM Publications.

Sugawara, N., Sasaki, A., Yasui-Furukori, N., Kakehata, S., Umeda, T., Namba, A., Nakaji, S., Shinkawa, H., and Kaneko, S. (2011) *Annals of General Psychiatry* 10:27.

Tambs, K. 2004. Moderate effects of hearing loss on mental health and subjective well-being: Results from the Nord-Trøndelag Hearing Loss Study. *Psychosomatic Medicine*, 66,776-782.

Thomas, A. (1984) *Acquired hearing loss: psychological and psychosocial implications*. Orlando, FL: Academic Press.

Timmermans, L. (1989) Research project, European Society of Mental Health & Deafness in European Congress on Mental Health and Deafness proceedings, Utrecht, 87-89.

Tomita, M., Mann, W. and Welch, T. (2001) 'Use of assistive devices to address hearing impairment by older persons with disabilities', *Int J Rehabil Res*, 24, 279-9.

World Health Organisation (WHO) (2001) *The World Health Report 2001: Mental health: new understanding, new hope*. WHO: Geneva.

Woodcock, K. and Pole, J. (2007) Health profile of deaf Canadians – analysis of the Canada community health survey. *Canadian Family Physician* Vol 53:2140-2141.

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