The consequences of age-related sight- and hearing loss

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The occurrence of dual sensory impairment amongst older people has proven to be much more widespread than previously believed. Statistically, between 3.8 and 6.8% of people over 80 suffer from such a high degree of dual sensory impairment, that they fall under the definition of deafblindness.

But what are the consequences of dual sensory loss? What impact does it have on the everyday lives of old people? And what are the problems they are up against?

Such questions have led to a series of studies published in scientific journals over the last 10 years. We have studied 18 of these in detail to analyse their findings.

Despite their different approaches and methods, the articles have many things in common and unanimous conclusions, which demonstrate that

1. a dual sensory impairment has a major impact on the way older people cope with life physically and psychologically, and
2. there seems to be a higher illness and mortality rate amongst them than others in the same age group with no sensory problems.

But as the studies also show it is possible for older people with a dual sensory impairment to avoid some of the negative consequences, and achieve better quality of life if the hearing and vision loss is allowed for and – as far as possible – compensated for.

Functional level
ADL (Activities of Daily Living) and IADL (Instrumental Activities of Daily Living) are terms which are directly related to a functional level, and which are often the central themes when discussing older people and their ability to cope.

ADL refers to the activities which belong to everyday life. Focus here is directed on an individual’s own abilities in relation to such activities as eating, bathing, personal care, dressing, going to the toilet, managing stairs without support and getting around in general.

IADL refers on the other hand to more demanding, and often outgoing activities such as going to the bank, talking on the phone, shopping, preparing food and administering their own medicines and finances.
In an American study entitled "Dual sensory loss and its impact on everyday competence", a group of 5,151 older people over the age of 70 was studied, looking at the everyday competencies they use.

Those who reported dual sensory impairment, generally indicated that it had a major impact on both ADL and IADL – not surprising specifically in the case of the latter.

Twice as many older people with dual sensory impairment reported problems getting dressed as those with no such functional loss. Getting in and out of bed was even worse – with 2.5 times as many older people with dual sensory impairment reporting problems as those unaffected.

On the issue of difficulties when venturing outdoors, the risk was 86% greater for older people with dual sensory impairment than those with no sensory loss.

When it came to IADL activities, the study indicated it was more difficult for older people with dual sensory impairment to communicate via the phone and to manage their finances. (The study compensated for impaired cognitive function levels influencing the ability of older people in general in this area.)

**Higher risk of falls**

Another American study, "Vision impairment and hearing loss among community-dwelling older Americans: implications for health and functioning" (2004) took a closer look at the relationship between the functional level and dual sensory impairment in the over 70 year-olds.

The combination of the two functional impairments is strongly linked to poor quality of life, physical disability (particularly with regard to IADL), balance problems, falls, hip fractures and increased mortality rates compared to people with only sight or hearing problems or with no problems with either.

Amongst older people with dual sensory impairment, the risk of falling was three times higher than those without, whilst the risk of hip fractures was twice as high. They also reported problems with walking 4.3 times more than unaffected older people.

It's obvious that impaired sight plays a larger role in such instances. But the risk of falling, hip fracture and walking problems was also higher in the group of people with dual sensory impairment than in the group with only a vision impairment, which means that the loss of sight is not the only cause.

More problems related to ADL and IADL for older people with dual sensory impairment is also the conclusion in the two American studies "The prognostic value of sensory impairment in older persons" and "The effect of visual and hearing impairments on functional status", both dating from 1999.
**Restrictions to social life**
The American studies also showed that a dual sensory impairment puts a restriction on the social lives of older people. Whilst 74% with no sensory problems reported that they had visited friends during the last two weeks, only 63% of those with dual sensory impairment had done the same. Older people with dual sensory impairment also had only half as much telephone contact to their friends compared to those with no sensory impairment.

33.7% of older people with dual sensory impairment reported that they would like to undertake more activities in their social lives, compared to 25.1% with only hearing problems, and 31% with only vision problems.

The studies also clearly indicated that a vision impairment has a much heavier impact on ADL and IADL than does a hearing impairment.

**Psychological problems**
Cognitive problems (memory loss, confusion and associated difficulties) and depressive symptoms are amongst the most prominent psychological problems for older people. And just as there is a link between an individual’s functional level and illness, there is also evidence of a link between dual sensory impairment and such problems.

In the aforementioned study "Vision impairment and hearing loss among community-dwelling older Americans: implications for health and functioning" of older people over 70, the occurrence of mild cognitive problems – described as "confusion" – was 2.8 times greater amongst older people with dual sensory impairment than amongst those with no sensory impairment. In comparison, the occurrence amongst the visually impaired older people was 2.2 times greater and amongst hearing impaired 1.4 times greater than those without any sensory problems.

An Australian study from 2006 "Sensory and cognitive association in older persons: findings from an older Australian population" used a test – the Mini-Mental State Examination (MMSE) – on the 3,509 participants to indicate whether there were cognitive problems. Amongst those participants with dual sensory impairment, there were six times as many showing signs of cognitive problems than those in the group unaffected. (Amongst visually impaired the occurrence was four times greater than those with no sensory problems, and amongst hearing impaired occurrence was twice as great.)

Thus, these studies underscore the importance of being extra aware of the risk of cognitive problems amongst older people with dual sight- and hearing loss, whilst at the same time being aware that a dual sensory impairment can also be confused with cognitive problems – and vice versa.
More depressive symptoms
When you consider the enormous stress that living with a dual sensory impairment puts people under, it is not surprising that it is also linked to depressive symptoms.

A Finnish study from 2002 of 470 older people over the age of 75 ("Combined hearing and visual impairment and depression in a population aged 75 years and older") indicated occurrence of depressive symptoms (measured using the Zung Depression Scale) 1.6 times higher in the group with dual sensory impairment than in the group with no sensory impairment.

The same trend showed in the 2004 American study referred to above ("Vision impairment and hearing loss among community-dwelling older Americans: implications for health and functioning"), in which the occurrence of depressive symptoms among older people with the dual handicap was even higher – namely 2.7 times that in the group with unimpaired vision and hearing.

A very similar result was found in another American study ("The effects of single and dual sensory loss on symptoms of depression in the elderly") from 2005, which analysed data from a major interview-based study of older people, which included a series of questions on mood, energy, worrying, self-worth and other areas that are affected by depression.

The increased risk of depressive symptoms prompted the researcher conducting the study to conclude the following: "It is vital that professionals working with sufferers of dual sight- and hearing loss are aware of the increased risk of depression or depressive symptoms developing, and that they run screening tests for them. Early diagnosis of such problems can lead to treatment or rehabilitation which can help the patient achieve or retain a high degree of quality of life."

Two other studies from Italy ("Sensory impairment and quality of life in a community elderly population") and Hong Kong ("Combined effect of vision and hearing impairment on depression in elderly Chinese") have shown a link between depressive symptoms and dual sensory impairment which is higher than in older people with vision or hearing impairment as well as in those with no sensory loss.

However, it is important to note that these studies all discuss depressive symptoms, and not depression in the clinical sense, i.e. as an illness in which a number of symptoms of a certain degree have to present at the same time.

Illness and mortality
As we get older, the risk of a number of other illness and health problems rises for the whole population. But several studies indicate that the risk of illness and accidents rises higher for older people with dual sight- and hearing loss – and the same applies to the rate of mortality.
The aforementioned American study "Vision impairment and hearing loss among community-dwelling older Americans: implications for health and functioning" (2004) showed there was a higher rate of occurrence of a number of illnesses amongst older people with dual sensory impairment than amongst those unaffected.

In people with dual sensory impairment the risk of

- high blood pressure was 1.5 times higher
- heart problems was 2.4 times higher
- stroke was 3.6 times higher
- arthritis was 2.2 times higher
- diabetes was 2.1 times higher

than in those with no sensory impairment.

Such illnesses naturally also play a role in the mortality of the group. A 2006 American study of just under 117,000 participants ("Concurrent visual and hearing impairment and risk of mortality") indicated increased mortality amongst (white) men and women with dual sensory impairment. Mortality amongst white men with dual sensory impairment was approximately 1.2 times higher than amongst with no sensory impairments, whilst it was approximately 1.6 times higher amongst white women compared to those without sensory impairments.

A somewhat smaller Italian study from 1995 of 1140 older people between 76 and 81 ("Sensory impairments and mortality in an elderly community population: a six-year follow-up study") also believed there was a link indicated between the dual sensory impairment and higher mortality rates – but in the case of this study, this was seen only amongst men.

**Possible explanations**

But what can a link between dual sensory impairment and physical illness and higher mortality rates be due to? The researchers point to two particular possible explanations.

The first is that these people may have been exposed to certain factors – such as smoking – throughout their lives, which can have an affect on sight and hearing *as well as* the development of certain illnesses.

The second is that dual sensory impairment has an impact on general quality of life, mood, functional level and social relationships, all factors which have been proved to have decisive influence on mortality amongst older people.

A third explanation is quite simply related to age. The occurrence of dual sensory impairment rises steeply with age, as does the occurrence of other serious illnesses. However, in the studies mentioned, the results were, of course, adjusted for age – i.e. allowance was made for this factor when calculating mortality – which means this cannot be the sole explanation.
Health-related quality of life
Based on the concept of "health-related quality of life", an Australian study from 2006 ("Association Between Vision and Hearing Impairments and Their Combined Effects on Quality of Life") showed a clear link between dual sensory impairment and poor health-related quality of life.

Referring to a national study performed in the USA in 1994, the Australians point out that older people with dual sensory impairment have significantly lower health-related quality of life with a string of consequences, physical and psychological as well as their social abilities.

The American study "Vision impairment and hearing loss among community-dwelling older Americans: implications for health and functioning" is referred to several times because it describes the consequences in a number of different areas. This study also looked at health-related quality of life and highlights that older people who reported having a dual sensory impairment were significantly less inclined to report having excellent health" – only 7.7% of them did this, compared to 16.4% amongst those with no sensory impairment. Furthermore, 18.5% of those with dual sensory impairment reported to have decidedly "poor health", compared to 6.7% of those with no sensory impairment.

The study “Surveillance for sensory impairment, activity limitation, and health-related quality of life among older adults – United States, 1993-1997" also indicated (not surprisingly) that chronic illness and functional impairment of for example vision and hearing, imposed severe limitations on activities and resulted in poorer health-related quality of life.

Focused action gives results
The studies highlight in different ways the need for early action to compensate for the functional impairments which older people with dual sensory loss have to live with. A focused action is required that should lead to improving their general functional level and quality of life.

This is highlighted by – among others – the Italian study "Effects of sensory aids on the quality of life and mortality of elderly people: a multivariate analysis" which demonstrates that older people with visual and/or hearing impairments can be helped to enjoy old age despite the many obstacles encountered in their daily lives.

The study showed a clear link between sensory aids and quality of life, demonstrated in the form of a close relation between uncompensated sensory loss and poor quality of life – and on the other hand, between good quality of life and compensated (as well as possible) sensory loss.

One thousand, one hundred and ninety two (1192) older people between the ages of 70 and 75 living in their own homes took part in the study. They were those with:
- no vision and hearing problems
- vision and/or hearing problems who had received compensation
- vision and/or hearing problems who had not received compensation

Older people with the right sensory aids – even those with dual sensory impairment – indicated they were in a better mood, enjoyed a richer social life and had an easier daily routine than those who did not receive the necessary support and compensation, and who had to struggle harder to cope.

In fact, the study shows that the quality of life for older people with dual sensory impairment whose needs are compensated for as well as possible, is very close to the quality of life experienced by those with no sensory impairment at all.