

# Aging mind and memory



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## **abstract**

One problem that majority of the older adults face in the process of aging is that of hearing loss. Hearing loss is one of the most common problems of aging affecting older adults. Hearing loss, in particular happens for many reasons. The purpose of this research is to find the age related causes of decline in cognitive functions and hearing abilities of older adults

Research indicates that loss of hearing is a serious condition faced by almost one third of aging adults. Hearing loss also has an impact on the cognitive function. This results in forgetting and memory loss.

Hearing aids can help improve the quality of life for aging individuals as it betters the hearing process. Hearing loss has several implications on our lives.

Populations worldwide are aging and an understanding of age related changes and the effects of aging is required.

A human brain goes through changes during the aging process. As the population continues to grow older age and life expectancy increases the certain problems arise. The Multiple problems of aging are that in older ages minor problems may have a greater psychological impact because of age related reasons.

## **Introduction**

This research proposal is an attempt to study the effects of Aging on the most complex organ of the human body, the brain and to assess the associations between perceptions of aging and behavior.

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## **Hypothesis**

20% or less of hearing loss or decline experienced by elderly adults result from injury or chronic disease.

One of the most widespread problem of aging is that of hearing loss.

Normally from what we see every one in three person whose older than 60 has a hearing problem. These hearing problems can make it harder for the older people to understand the instruction, respond to any kind of warnings, to hear doorbells, phone bells and alarms. This can all be frustrating for the other family members and will make it hard to enjoy talking to friends.

Moreover such issues could be embarrassing and dangerous as well.

(hearing loss and aging, 2009)

Therefore it's very important to understand why such problems occur.

Hearing loss, in particular happens for many reasons. Mostly many people lose their hearing slowly as they age, a condition which is known as 'presbycusis'. This problems runs in families and reasons for it have not yet been figured. (hearing loss and aging, 2009)

At times hearing loss could also be caused by exposure to too much loud noise, a condition known as 'noise-induced hearing loss'. Examples of this kind of hearing loss could be found in many construction workers, musicians, farmers, tree cutters and people in the army. Sometimes these hearing problems can cause ringing sounds in the ears as well. Other than this hearing loss can also be caused by head injuries, virus or bacteria, tumors, certain medicines and heart conditions or stroke. However all these reasons contribute only less than 20% of the causes of hearing and memory losses

because in majority these problems along with decline in cognitive functions are significantly a consequence of aging. (hearing loss and aging, 2009)

## **Purpose statement**

To find the age related causes of decline in cognitive functions and hearing abilities of older adults

## **Primary Research question**

What are the causes of decline in cognitive functions of the older adults?

## **Other research questions**

Qs1) aging is the most significant reason why older adults suffer from hearing loss?

Qs2) injuries and chronic diseases mostly cause memory loss on older adults?

Qs3) older people are less productive because of the sensory losses they suffer from?

Qs4) study of gerontology is important to get rid of problems like hearing and memory loss?

## **Objectives**

The purpose of this research is primarily to find out the most important causes of hearing loss and decline in other cognitive functions in older adults.

The research will emphasize also on effects of aging on psychological and social issues such as Learning, Memory, Reaction time , Intelligence,

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sexuality, and stress along with certain neurological problems that incur as a result of changes in the brain associated with aging.

The biological and chemical changes taking place in our brain which result in psychological effects have been studied.

## **Methods**

### **Research tool**

The research would be carried out with the help of a Questionnaire including both open ended and close ended questions.

### **Sample populaion**

The Questionnaire would be filled by randomly selecting 1000 individuals from various localities of the City, with diverse backgrounds and economic situations.

By doing so, the sample would be a true representation of the elderly in the whole society and not just a biased one representing a minority.

These people would include both males and females and individuals only between the ages of 50 and 70. In order to avoid biasness they will be allowed to anonymously answer the Questionnaires.

### **Where will the research be conducted?**

Questionnaires would be provided to these individuals at various ‘ hotspots’ for the elderly which include hospitals, golf courts, parks, jogging tracks , shopping centers, workplaces and Old Homes. Also this in turn will allow us to get a diverse sample which would include the elderly from all spheres and conditions of life.

## **Analysis of the data**

The data obtained from the questionnaire would be weighted prior to the performance of the statistical analysis that shall be carried out so that the results would better reflect the age, gender, marital status and the educational level of the individuals.

Thus by dividing our data collected on the basis of gender, marital status, educational status, economical conditions, we would be better able to study the effects of Aging on these individuals and also be able to determine whether any of these elements have a direct correlation with the psychological effects on the brain.

## **Limitations**

However, every method used to collect research data has a few limitations attached to it thus affecting the Research. Similarly, in our research method used, participants may be unwilling to answer certain questions or may inaccurately answer them. Thus data may not be so accurate. Also they may respond by providing us with biased answers which also in turn affects the quality of our research.

## **Discussion**

As a person grows older he becomes wiser with experience however the experience of memory loss and cognitive slowing as a byproduct of aging affects our daily routines and impacts our personality in a negative way. Chronological aging as a frame of reference for the study of developmental phenomena is widely used but not very well understood.

Two thirds of all people eventually experience some significant loss of mental strength and understanding capabilities as a result of aging. Usually people who are above the age of sixty experience significant cognitive declines, including a weaker memory (memory loss or absentmindedness or both), a low concentration level, unclear thoughts and a lost focus along with some other neurological problems like the Alzheimer's disease, Parkinson's disease or stroke. (W. Browne, 2003)

Many problems are due to memory loss in older ages. Some common age related dementia includes:.

Recent memory loss. Usually people suffering from age related Dementia are forgetful and find it harder to remember things. They might ask the same question again and again each time forgetting that the question had already been answered.

Difficulty performing familiar tasks. They might perform a task and then forget to perform it or will forget about performing it at all.

Problems with language: people in older ages may forget simple words and use wrong words because of which other people or family members would not be able to understand what they are saying.

Time and place disorientation. They may forget where they are, where they were supposed to go or where they live.

Misplacing things. The patients usually don't remember where they put their things and then have a difficulty in looking for them.

Changes in mood. Everyone is moody at times but as people grow older they have more mood swings, being happy one time and sad the very next moment.

Cognitive Functioning - e. g., impairments in concentration, distractibility, lack

of planning, poor judgment, rapid forgetting, failure to learn. (Andrews, 2009)

The community also suffers from the loss as these conditions will have a large amount of social cost.

## **What this research means to:**

### **The aging community**

This research will help the aging community to better understand the problems it faces and also how to get rid of these problems by having an insight on the root causes.

Aging individuals tend to ignore the developing loss of hearing and avoid getting it treated or examined at the early stages. If hearing problems are prolonged then it becomes even more difficult to treat them. Research indicates that very few people actually use hearing aids (roughly about 24% of those with hearing loss). 16.7 hearing aid that have been sold remain unused, as indicated by a recent study. Although hearing aids produce a 77% satisfaction rate, yet its usage is quite low.



## **The researchers**

The researchers would know what aspects they need to study further and what other sort of researches need to be conducted in order to find answers to problems.

Furthermore, research on the aging mind requires a sound knowledge of the issues. Therefore, future research should more specifically focus on acquiring age-related knowledge, finding out social environments which are more age-friendly and training programs which are efficient enough to help the older people in allocating their declining resources in a much better way. (Davies, 2004)

## **Older adults**

Loss of hearing is a serious condition faced by almost one third of aging adults. If precautionary measures are not taken then this condition gets worsened and has serious detrimental effects on the aging individual as well as his/her personality.

The most feared aspect of aging is losing mental function. In fact this constant fear directly affects our quality of life. Many individuals often believe that they are losing their mental functions and as a result, they experience a loss in their self-esteem and withdrawal from society and social settings.

## **Relationship of age-related physiological changes and hearing loss**

As individual ages, certain changes take place within the body that are chemical, biological or physical. In a similar manner the human brain also

goes through a structural change which is a process known as ventriculomegaly in which the cerebral ventricles expand. As a result of this some of the connections between the neurons are reduced or become inefficient. This is the reason why these physical changes directly affect the psychological processes in the brain. (Browne, 2003)

Hearing loss also has an impact on the cognitive function. A recent Brandeis University study found out that people with mild to serious hearing loss may find it difficult to retain what they have heard because most of their concentration span diverts towards trying to listen what is being said rather than trying to comprehend what is being said. This results in forgetting and memory loss.

Physical and psychological problems will make people more dependent on others in their everyday life. They can have an impact on the individual's ability to work or engage himself into any meaningful activity and will negatively affect the social attitude of the person.

### **Creating better support systems**

In cases like these the support systems help patients live as actively as possible until death. These support systems address the needs of the older aged patients and their families and provide them with necessary counseling. This is done in order to solve all sort of psychological, social or spiritual problems. The goal is to achieve the best quality of life for the individuals and their families. (Davies, 2004)

Neuroscience researcher Dr. Arthur Wingfield suggests that individuals who communicate with people with hearing problem should pay special attention

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to the decline in cognitive function that may be accompanied along with it, and hence should speak more clearly, concisely and pausing after each clause in their sentence.

Good support systems need to be developed and in order to do so for adults who have hearing problems proper instructions should be given so that the older people don't feel anxious, helpless, paranoid, isolated or depressed. With patience, love and care the condition of individuals who suffer from loss of hearing could be made better. Depression may be avoided if such individuals are given company and care.

Hearing aids can help improve the quality of life for aging individuals as it betters the hearing process. Due to this the aging individual can develop better social, family and work relationships.

The recovery from all these problems will depend on some factors like the severity of the condition, age, health status , personality and the availability of support services.

### **Social attitudes towards memory loss/decline**

Hearing loss has several implications on our lives. Those aging individuals who face this condition cannot converse well and hence leads to social cut off. It also causes embarrassment, feeling of isolation and loneliness.

After Arthritis and hypertension, hearing loss is the third most prevalent disabling condition. A lot of aging individuals do not take loss of hearing seriously, although it can have serious implications on their lives. The quality of life of people who have to face loss of hearing deteriorates and their

involvements and socializing reduces along with loss of confidence. They feel embarrassed and hence avoid conversation.

## **Conclusion**

Aging naturally causes changes in physical, cognitive, and social capabilities of a person. Age related changes like declining strength and difficulty in remembering is experienced as a kind of loss. Such Experiences of loss negatively affect health however some people maintain a positive health attitude instead which gives rise to a variety of these experiences.

A positive health attitude is associated with persistent beliefs and behaviors. So even in older ages people can maintain their health if their beliefs are positive and they find themselves less susceptible to diseases. Optimism in an individual's personality and people with a perceived control of life events are those aspects of the personality which help in maintaining good physical health as well. (Carroll Estes, 2009)

The Multiple problems of aging are that in older ages minor problems may have a greater psychological impact. Older people suffer from additional problems of mental impairment, economic hardship and social isolation which can cause distress and other the cumulative effect of which could be greater than any disease.

## **How are the families and community being affected?**

Researchers are involved in finding ways to keep our brains young so as to prevent it from aging and to delay the onset of disease that follows from it as a result.

A very well known age related disease is Alzheimer. This disease and other age related dementia can cause many problems for the individuals and their families.

Families of people with neurological conditions suffer from considerable emotional distress and burden, which can have an impact on their own mental health. A consequence would be Feelings of grief, anger, frustration and guilt which will eventually lead to depression.

In fact family and community stress is associated more with a person's alterations to personality and interpersonal behavior. It results in conflicts and frustration. As more people survive into old age they also begin to suffer chronic illnesses and need some form of help from their families and people around.(Rama K. Jayanti, 2004)

### **Importance of this research**

The research on age related problems of personality and cognitive function can help in raising awareness of the implications that an aging population can have for the society. More research needs to be conducted and investment needs to be done for the care and treatment of people with such illnesses. (Carroll Estes, Maggie Kuhn: social theorist of radical gerontology, 2009).

Aging and its effects on the psychological functioning of a person will influence his ability to mix in with the community, access services like treatment, rehabilitation and education, create problems in family and social relationships, ability to get any emotional support from people and develop a positive quality of life. (Committee, 2005)

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Therefore, with the help of this research the impacts of aging can properly be understood which help the individuals, their families, communities and the caregivers in better understanding all these problems. More solutions could also be found and better support services can be created with more awareness. Moreover, new aspects of research that has still not been conducted can be discovered.

## **literature review**

There are several different types of hearing loss, it may be very serious such as significant decline in hearing capability or it may be quite mediocre which is a slight decline in hearing capacity. Biologically hearing loss is classified into Presbycusis, Sensorineural and Tinnitus.

Presbycusis, people who have this type of hearing loss find it difficult to hear what others are saying and cannot stand loud noises. It has age related causes. (hearing loss and aging, 2009)

Sensorineural hearing loss is a type of hearing loss that results from damage to different tissues of the inner ear.

People with tinnitus may hear different kinds of loud noises inside their ears, such as ringing, roaring, and screaming etc. Tinnitus may be caused by loud noise, hearing loss, certain medicines, and other health problems, such as allergies and problems in the heart and blood vessels. The causes of this unusual loud noises being felt inside the ears is unknown.

According to a study by National Council on Aging (2008), aided hearing loss improves the quality of life. (hearing loss and aging, 2009)

Early diagnosis is extremely important to slow down or curb the hearing loss. If it is caused by some drug or allergy then that may also be detected.

The human brain starts to develop problems with sorting and understanding information that it receives, when an individual reaches the age of 40s or 50s. Dr Frisina has noticed this change in him as well as in other aging individuals he counsels. (Mares-Perlman JA, 1998)

The slow processing of sensations in the brain due to aging, reflect the cause why so many older adults find it difficult to talk or make any speech in noisy environments. Older adults with “ normal” hearing also face the same circumstance.

There are a lot of books and studies which tell us that as a person grows older certain personality disorders develop. These Personality disorders are reflected in their interpersonal skills also that older people tend to give unexpected responses to clinical treatment. Patients with such personality disorders are often described in as “ difficult.” (Committee, 2005)

A human brain goes through changes during the aging process. As a person grows older every organ of his body deteriorates and same is the case with the human brain. These changes and deteriorating factors in this organ impact the personality of the individual as a whole because it is the most sensitive and crucial part of the human body. The cognitive declines usually associated with aging are observed in the processing speed and reaction times, Cognitive control, Executive functions and Memory. The most frequent personality disorders among the old age people are paranoid,

schizoid and self defeating disorders. There are also treatments of these disorders. (Jason. L. Powell, 2004)

According to the recent studies the older people as compared to the youth are becoming more economically and demographically attractive. However, there are costs of an aging population that the society bears as a whole. (Andrews, 2009)

Our society nowadays discriminates the elderly and they are being ill treated. However Primitive agrarian cultures very existence depended upon the knowledge earned from experience, valued their elders, but even they were o moved to killing the non productive members of society because of harsh conditions of subsistence living. (Carroll Estes, 2009)

As the population continues to grow older age and life expectancy increases. As a result continued awareness, study and research concerning the psychology of adult development and aging is becoming highly important. The journal tells about the importance of building support systems with awareness programs. (W. Browne, 2003)

## **appendix**

### QUESTIONNAIRE



**Demographics:**

**Age:**

**Gender:**

**Marital status:**

**Education level:**

QUESTIONS:

**Question 1**

Aging is the most significant reason why older adults suffer from hearing loss?

- A) Strongly agree b) agree c) not sure d) disagree
  
- e) Strongly disagree

**Question 2**

Injuries and chronic diseases mostly cause memory loss on older adults?

- A) Strongly agree b) agree c) not sure d) disagree
  
- e) Strongly disagree

**Question 3**

Older people are less productive because of the sensory losses they suffer from?

- A) Strongly agree b) agree c) not sure d) disagree
  
- e) Strongly disagree

### **Question 4**

Study of gerontology is important to get rid of problems like hearing and memory loss?

A) Strongly agree b) agree c) not sure d) disagree

e) Strongly disagree

### **Question 5**

Building of better support systems can lessen the costs of aging suffered by the individual?

A) Strongly agree b) agree c) not sure d) disagree

e) Strongly disagree

### **Question 6**

Age related physiological changes are a cause of alterations in personality of older adults?

A) Strongly agree b) agree c) not sure d) disagree

e) Strongly disagree