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# A Study to Find Correlation between Depression and Quality of Life in Geriatric Population

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## ABSTRACT

**Introduction**- Aging, an inevitable process of every living creature, is associated with a reduction in the homeostatic control and reserve capacity of the organ systems, the capability to adapt to environmental factors, and the capacity of a stress response. Depression is defined as a medical illness and a common mental disorder characterized by persistent sadness, discouragement, loss of self-worth and interest in activities and decreased energy. Quality of life can be defined as an individual's way of perceiving happiness and satisfaction with life and their position in life in relation to the culture and value systems in which they reside in and in context to their expectations, values and concerns incorporating with physical health.
**Materials and methodology**- For this study, 60 participants were approached. The study was conducted using MMSE, GDS and SF-12 in older adults living in residential areas of Surat and 60 responses were collected. Spearman's correlation test was performed to find correlation between Depression and Quality of Life. RESULT- Result showed that there is positive correlation between GDS and SF-12 Mental while there is negative correlation between GDS and SF-12 Physical. CONCLUSION- There is moderate to high correlation between depression and quality of life in geriatric population.

***Keywords***- Aging, Geriatrics, Geriatric Depression Scale, Quality of Life, Depression, MMSE, SF-12.

## INTRODUCTION

Individuals above the age of 65 years of age are at present classified as geriatric. Aging, an inevitable process of every living creature, is associated with a reduction in the homeostatic control and reserve capacity of the organ systems, the capability to adapt to environmental factors, and the capacity of a stress response.[1] It involves a process whereby human being is subject to various physiological changes that lead to a natural drop in the given capacities of the body that are strongly differentiated in accordance with living conditions[2] and is characterized by progressive degeneration of organ systems and tissues of the body. Diet, exercise, and exposure to microorganisms, pollutants and ionizing radiations are the major factors influencing it and is largely determined by genetics.[3] According to a study, the dramatic changes in birth and mortality rate in the 20th century will rise and reach 24 million in 2030.[4,5] The reports of The World Health Organization (WHO) show that the older adult population would be more than 600 million across the globe which is estimated to double and reach 2 billion by the year 2050.[6]

We can classify the elderly into 3 groups that is young old, whose age is between 65-75 years and have minimal level of disability, the second is middle old whose age lies between 75-85 years exhibiting the occurrence of chronic disease and the last

category is old-old with individuals having age more than 85 years.[7]Age is considered to be one of the important determinants of mental health as old age is a period of transition where a person has to deal with the challenges affecting the mental and social wellbeing along with physical aging. The overall prevalence of mental and behavioural disorders tends to increase with age due to normal aging of brain, deteriorating physical health and cerebral pathology. [8] Depression, among the various mental disorders, accounts for greatest burden among the geriatric population as it increases an individual's dependency on others and decreases QOL.[9] Depression can have significant clinical and social implications in the lives of elderly if left untreated. [10]

Depression is defined as a medical illness and a common mental disorder characterized by persistent sadness, discouragement, loss of self-worth and interest in activities and decreased energy which is usually accompanied by reduction in energy and concentration, sleep problems, decreased appetite, weight loss and body aches. On the basis of the extent of its severity, the symptoms and the duration of disorder, depression is differentiated from normal mood changes. [11] It is also worth noting that functional disability and depressive symptoms, both, are dynamic and progressive processes, often associated with the consequences of underlying comorbid chronic conditions that occur while aging. [12-14] Emotional and physical suffering are the results of depressive symptoms and disorders which are associated with high risk of disability in diverse areas of functioning and impaired QOL, thereby leading to a higher risk for deaths among the elderly. [15-17] Though aging is an ineluctable physiologic process, it is one of the principal causes of decrement in the quality of life due to its biological, chronological, social and psychological parameters. Reduction in quality of life is a result of a high prevalence of chronic diseases and disabilities in the old as compared to the other age groups. [18-19]

Quality of life can be defined as an individual's way of perceiving happiness and satisfaction with life and their position in life in relation to the culture and value systems in which they reside in and in context to their expectations, values and concerns incorporating with physical health. [18-19] The basic framework of QOL has been evaluated by studies carried out on health related QOL which reported that, it is composed of various dimensions which include social and psychological factors, physical function, life satisfaction, wellbeing, and awareness of health status. The concept of QOL, as defined by the WHO is described as 'an individual's perception of their position in life in the context of the culture and value systems in which they lived and in relation their expectations, goals, standards and concerns.'[20]

The QOL depends on the emotional interpretation which is given by the subject to the facts and events. The QOL is considered to be increasingly acknowledged as an assessment which is strongly dependent on the person's subjectivity. [21] There are various outcome measures with that we can measure the depression among the geriatric population. Among them Geriatric Depression Scale is very easy to administer and widely used for elderly age group. The long form of GDS is a brief; 30 item questionnaire and in 1986, GDS 15 was developed in which the questions from long form of GDS that had the highest correlation with the symptoms of depression in validation studies were included in the short version, where, scores obtained between 0-4 were considered depending upon age, education and complaints while, the scores between 12-15 indicated presence of severe depression. [22]

A generic measure of health status, SF-12 is a multipurpose short form of SF-36 which was developed to be a much shorter form of SF-36 which is used in surveys of general and specific populations as well as

large longitudinal studies of health outcomes. The SF-12 includes two components- Mental Component Summary (MCS) and Physical Component Summary (PCS) To evaluate the multidimensional health related QOL, SF-12 is one of the most used questionnaires. [23]

Reduction in QOL and increase in the level of depression in the elderly is due to low educational status and the presence of chronic disease. Efforts to improve these conditions playa a major role in contributing towards the improvement of QOL in the geriatrics. Depression, among the various mental disorders, accounts for greatest burden among the geriatric population as it increases an individual's dependency on others and decreases QOL. [9]

Hence the current study aims to find Correlation between Depression and Quality of Life in Geriatric Population.

## MATERIALS AND METHODOLOGY

A correlational study and a convenient sampling method was used to study the desired population which comprised of the geriatric population. The sample size selected was 60 and the study was carried out in the 6 months in Residential areas of Surat. For the study, the sample size was calculated in G-power 3.1.9.2 with effect size 0.60 and $\alpha$= 0.05. sample size calculated was 60, with a drop out chances of 20% total sample size was 84.

According to the inclusion criteria, both, males and females belonging to the age group of 60-80 years and the subjects who had a score equal to or more than 18 on MMSE scale were included in the study who were willing to participate in the study.

Subjects with speech difficulty, hearing loss, visual problems, suffering from neurological conditions such as Stroke, Parkinson's disease, traumatic brain injury, and inflammatory joint disease were excluded from the study.

**Outcome Measure**: -

**GDS – 15**

The Geriatric Depression Scale is a 15-item scale (GDS-15), which is a short form of GDS-30 and is used as a way to screen, diagnose and evaluate depression in older adults. This version of GDS is interviewer- administered scale, which is time constrained and has good psychometric properties and wide acceptance in the scientific community. Out of the fifteen items, 5 indicated the presence of depression when answered negatively, while the remaining 10 items indicated depression when answered positively. The scoring is as follows-

- 0-4: considered normal, depending upon the age, education and complaints.
- 5-8: mild depression
- 9-11: moderate depression
- 12-15: severe depression

**SF – 12**

The SF-12 is a multipurpose short form (SF) generic measure of health status. The SF-12 rapidly becoming an instrument of choice for purposes of monitoring the health of both general and specific populations because it is substantially shorter than SF-36.

The 12 items in the SF-12 are a subset of those in SF-36; SF-12 includes one or two items from each of eighth health concepts. Thus, the SF-12 measures eight concepts commonly represented in widely used surveys; physical functioning, role limitations due to physical health problems, bodily pain, general health, vitality (energy/fatigue), social functioning, role limitations due to emotional problems, and mental health (psychological distress and psychological well-being).

The SF-12 uses two items each to estimate scores for four of the eight health concepts (physical functioning, role physical, role emotional and mental health).

Scores for the remaining four health concepts (bodily pain, general health,

vitality and social functioning) are estimated using one item each.

**Procedure**: -

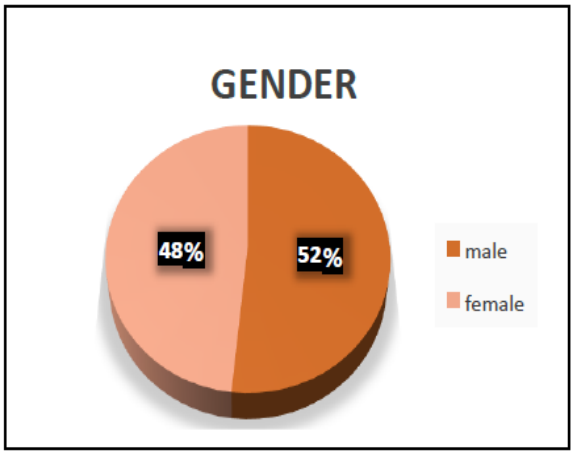
60 participants were approached for the study. The subjects were screened on the basis of inclusion and exclusion criteria. The procedure was fully explained to the subjects in simple language which they could understand and written informed consent for the same was taken. Then forms were made which included MMSE, GDS-15 and SF-12 questionnaire after which the participants were approached and responses were collected and further evaluated.

## STATISTICAL ANALYSIS

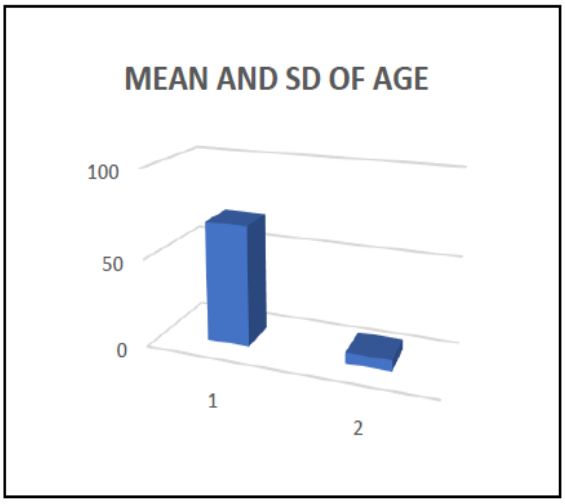
The statistical analysis was performed using SPSS version 20. Descriptive statistics were carried out for MMSE, GDS, SF-12 (physical and Mental component). Correlation between depression and Quality of Life was evaluated. Spearman's correlation test was performed to identify relationship between depression and quality of life. The level of significance was kept at p<=0.05.

## RESULT

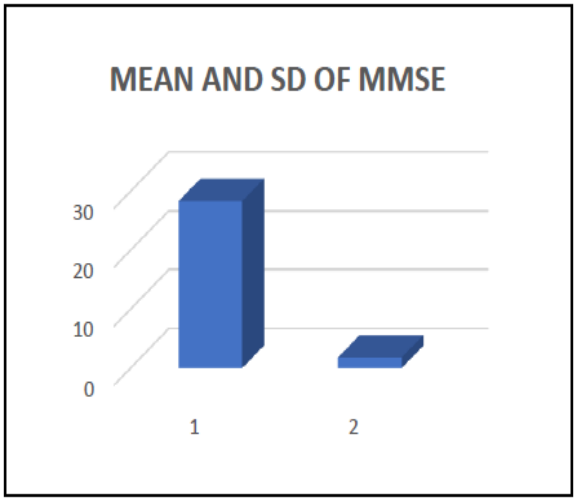
The study population comprised of 60 normal, healthy individuals of either sex of 60-80 years of age. The distribution of males 52% and females 48% in the study is illustrated in the pie chart 6.1. Graph 6.2 illustrates Mean ± standard deviation which was 68.516 ± 6.102 of the age of subjects. Graph 6.3 represents Mean ± SD which was 28.3 ± 1.797 of MMSE. Mean ± SD which was 5.1694915 ± 3.4791956 of GDS is illustrated in graph 6.4. Graph 6.5 illustrates mean value of SF12 Physical component which was -37.629 and standard deviation was calculated to be 20.121. Graph 6.6 illustrates mean ± SD which was 25.370 ± 20.121 of SF-12 Mental component. Graph 6.7 represents correlation between GDS and SF- 12 physical component which was a linear negative graph. Graph 6.6 illustrates a linear positive correlation between GDS and SF-12 mental component. The correlation was statistically obtained with p<=0.05.



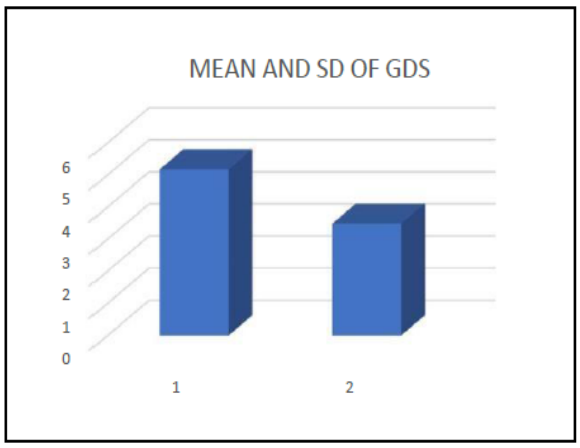

**Graph - 6.1 Illustrates gender ratio via pie chart of the subject.**



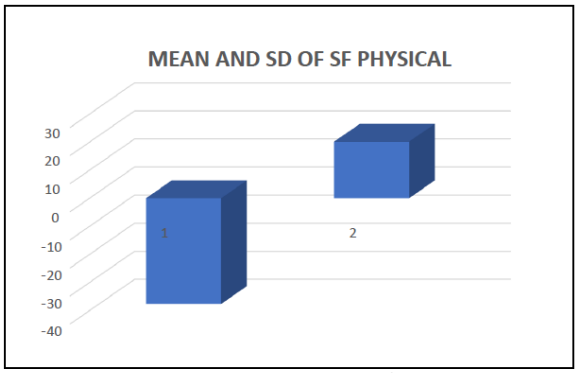

**Graph - 6.2 Illustrates Mean and SD of AGE.**



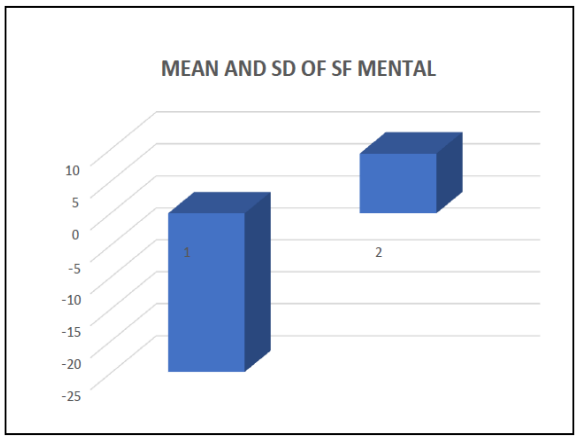

**Graph - 6.3 Illustrates Mean and SD of MMSE**



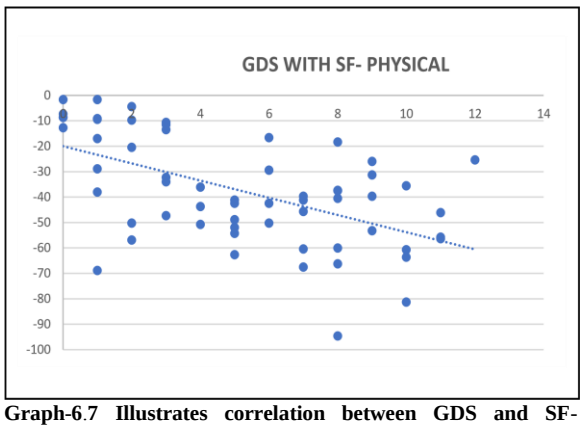

**Graph - 6.4 Illustrates Mean and SD of GDS.**



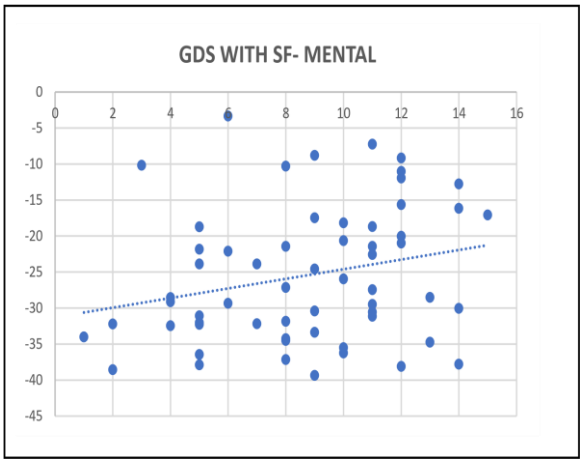

**Graph - 6.5 Illustrates Mean and SD of SF PHYSICAL**




**Graph - 6.6 Illustrates Mean and SD of SF-MENTAL**




**Graph-6.7 Illustrates correlation between GDS and SF-PHYSICAL.**




**Graph-6.8 Illustrates correlation between GDS and SF-MENTAL.**

**Table 1: Correlation between GDS and SF-PHYSICAL**

| Correlations | | | |
|---|---|---|---|
| | | VAR00001 | VAR00002 |
| VAR00001 | Pearson Correlation | 1 | -.552** |
| | Sig ( 2-tailed) | | .000 |
| | **N** | **60** | **60** |
| VAR00002 | Pearson Correlation | -.552** | 1 |
| | Sig ( 2-tailed) | .000 | |
| | **N** | **60** | **60** |
| ****. Correlation is significant at the 0.01 level (2-tailed).** | | | |

**Table 2: Correlation between GDS and SF-MENTAL**

| Correlations | | | |
|---|---|---|---|
| | | VAR00001 | VAR00002 |
| VAR00001 | Pearson Correlation | 1 | -.531** |
| | Sig ( 2-tailed) | | .000 |
| | **N** | **60** | **60** |
| VAR00002 | Pearson Correlation | -.531** | 1 |
| | Sig ( 2-tailed) | .000 | |
| | **N** | **60** | **60** |
| ****. Correlation is significant at the 0.01 level (2-tailed).** | | | |

## DISCUSSION

The present study was done to find the correlation between depression and QOL in older adults living in residential areas. Depression is a modulating variable of QOL in older adults. Elderly without

depressive symptoms had higher levels of quality of life than those with mild, moderate or severe. [24]

Various psychosocial factors such as loneliness, poor social/family support, isolation, dependency, lack of family care and affection, insufficient time spent with children, stressful life events, perceived poor health, lower level of spirituality, and higher use of emotion-based coping increase the risk of depression among the elderly. The lifestyle and dietary factors linked with depression suggest that there is a need to encourage geriatric patients to indulge in regular exercise, abstain from various substances including smoking, maintain regular dietary habits and develop hobbies to keep themselves occupied. [25] Demura and Sato (2003) reported that self-evaluation of health status showed a moderately significant relationship with depression ($r=.599$, $p<.001$).[26]

Available literature arising from India suggests that the prevalence rate of depression is significantly high among elderly population. [,25] Studies from India are in concordance with the findings from other countries which suggests that in medically ill geriatric patients depression is associated with higher level of disability, dysfunction, poor quality of life, and poor outcome.[,26-29]

Chyong -Fang Chang et al indicated in their study that factors associated with seniors performing health promoting behaviours included depression and physical discomfort. This phenomenon may be because of older adults living alone (22.2%) and the high percentage of older adults reporting physical discomfort (48.5%). Less social support and physical discomfort limited their social participation and overall health promotion performance. Higher scores for health-promoting behaviour generally correlate with lower geriatric depression scores in the older adults. [30] Significant correlations were found between depression and domains of functional disability.[,31-37]

It was observed in the present study that positive correlation was found between depression and mental component of SF-12 and a negative correlation was found between depression and physical component of SF12. This implies that as depression increases, there will be affection of mental component which is suggestive of reduction in QOL while on the other hand with an increment in level of depression the level of physical activity decreases reducing the health status. Akosile (2014) also found lowered QoL (particularly in the physical health component) in a group of older adults majorly dependent in physical function. This literature supports our present study. [38] Quality of life may be negatively affected by lower daily performance of health-promoting behaviours according to a previous report.[39]This is consistent with studies that found a higher prevalence of depressive mood among adults who did not engage in health-promoting behaviour and exhibited poor health. Meanwhile, older adults who participated less in social activities were more likely to be depressed compared with those with regular involvement. [40-42]

Higher scores for health-promoting behaviour generally correlate with lower geriatric depression scores in the older adults. [30] It has been reported that depression is a frequent problem and might have a significant effect on the quality of life in the elderly population.[42]

**Limitations Of Study**

The limitation of the study is the small sample size. This study is limited only to depression among older adults in relation to physical and mental health problems only, perhaps in future it should cover up its associated risk factors. We have used convenient sampling method so the affected population was not able to be excess properly. The study was done only in residential areas of Surat.

**Future Recommendations**

Future research can include a large sample size and can be conducted in wide range of area.

Future research should include identifying causes of depression among geriatric population so that appropriate primary prevention strategies may be developed.

## CONCLUSION

The result of the study suggests that depression can lead to impairment in the quality of life in geriatric population. This relation has important implication for the improvement of quality of life of geriatric population with the important impact of depression which includes significant morbidity, functional deterioration, hospitalization and expenditure to health and social services. Better understanding of the risk factor may help to reduce depression and maintain independence and overall health of an individual. Thus, it will help to improve the quality of life of older adults.

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**Conflict of Interest:** None

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**Ethical Approval:** Approved

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