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Research Article

**COGNITIVE DECLINE AMONG MIDDLE AGED AND ELDERLY
INDIVIDUALS AND PREVALENCE OF ASSOCIATED FACTORS**Aisha Rabbani¹, Lakhweer Rathi² and Ramesh Kumar³LUMHS Research Forum^{1, 2 and 3}Liaquat University of Medical & health Sciences, Jamshoro^{1, 2 and 3}**Abstract:**

Background: Cognitive decline is among the most feared aspects of growing old. It is also the most costly, in terms of the financial, personal and societal burdens. It is important, because cognitive decline heralds dementia, illness and death. Identifying the demographic, biological, and psychosocial factors that can help people maintain or enhance their cognitive and emotional health as they grow older.

Objective: To study the prevalence and extent of cognitive decline among middle-aged and elderly individuals and prevalence of its associated factors.

Methodology: This cross-sectional analysis, was conducted upon middle aged (35 to 60 years) and elderly (61 years and above) individuals, chosen via non-probability – purposive sampling. Data regarding hypothesized demographic, biological, and psychosocial factors and physical health was collected using a self-administered pre-structured questionnaire and the cognitive status was evaluated using the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE). The data obtained from the subjects was analyzed using MS. Excel 2017 and SPSS v. 21.0.

Results: Among the 148 subjects enrolled into the study, 117 were males, while 31 were females and the mean age of the sample was 49 years. Despite being middle aged or elderly, 71% of the subjects were working full-time. 78.4% of the subjects belonged to the middle socioeconomic class, and remaining 18.2% and 3.4% belonged to the lower and upper socioeconomic class respectively. The mean waist size of the sample was 36 inches and the mean BMI was 24, sizeable proportion of the sample admitted to be suffering from major systematic diseases, lead sedentary lifestyles and consumed imbalanced diets. The mean IQCODE score was 3.52, suggesting mild cognitive impairment among the sample.

Conclusion: Cognitive decline although mild, is preset among the study sample, impairing the ability to learn new skills (such as the use of new machines, gadgets and software), recalling past incidences and previously mastered skills and handling financial matters (particularly immediate purchasing decisions). It should be noted that most of the subjects are working individuals and an impaired cognitive function shall result in poor work performance, increased incidence of errors and a loss to oneself and the society at large.

Keywords: Proton Pump Inhibitors, Clostridium Difficile, Diarrhea and Gastric Acid Suppression.

Corresponding author:**Dr. Aisha Rabbani,**

MBBS Scholar

Liaquat University of Medical & Health Sciences, Jamshoro

Phone: +92-333-0277014

Email: ayesha.mamtaz@outlook.com

QR code



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INTRODUCTION

The occurrence of cognitive decline in middle aged and the elderly is gaining increasing attention in terms of descriptive and analytic epidemiology. The heavy impact of dementia on the healthcare system, strictly related to the aging of the world population, is moving the focus of research toward conditions possibly preceding the onset of the overt disease. [1] This may give us insight into the pathogenic mechanisms of dementia, enabling the identification of risk and protective factors and prevention or delay of the onset of the disease.

Moreover, apart from being considered as a condition possibly preceding the onset of dementia, cognitive impairment may by itself have an impact on everyday activities. Different terminology and diagnostic criteria may be found in the literature to describe this condition: benign senescent forgetfulness, age-associated memory impairment, mild cognitive impairment, very mild cognitive decline, age-consistent memory impairment, and late-life forgetfulness. [2]

With an increasingly aged population, both internationally and at home, cognitive impairment is a major health and social issue. Cognitive decline is among the most feared aspects of growing old. It is also the most costly, in terms of the financial, personal and societal burdens. In the developed world, cognitive failure is the cause for 40% of admissions to institutional care. [3]

It is widely agreed that more research is needed to understand the mechanisms of cognitive ageing. The first step in this process is to delineate what factors convincingly lead to the development of disability. Findings from numerous epidemiologic and clinical studies suggest that multiple biological, behavioral, social, and environmental factors may contribute to the risk for cognitive decline, however the high

variability among them in terms of such matters as study design and methodology makes it difficult to extract a coherent, dependable list of factors from which to develop prevention strategies. [4]

Our study therefore, employs a wide strategy of including all known demographic, biological, and psychosocial factors that are believed to be associated with cognitive decline among the middle aged and the elderly and assess their prevalence among the middle aged and elderly individuals (both normal and cognitively impaired), along with studying the prevalence and extent of cognitive decline in both the age groups. This shall help provide a firm observational data that may serve as the basis for future interventional research in this important field.

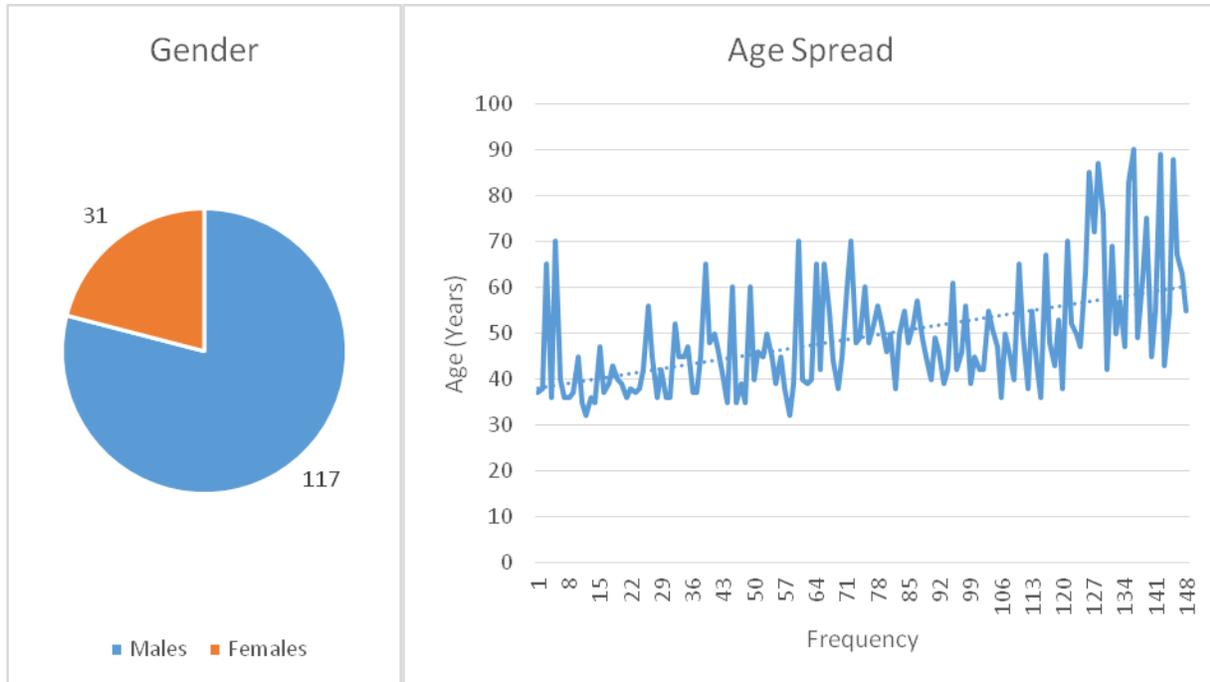
METHODOLOGY:

This cross-sectional analysis, was conducted upon middle aged (35 to 60 years) and elderly (61 years and above) individuals, chosen via non-probability – purposive sampling. Data regarding hypothesized demographic, biological, and psychosocial factors and physical health was collected using a self-administered pre-structured questionnaire and the cognitive status was evaluated using the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE). The data obtained from the subjects was analyzed using MS. Excel 2017 and SPSS v. 21.0.

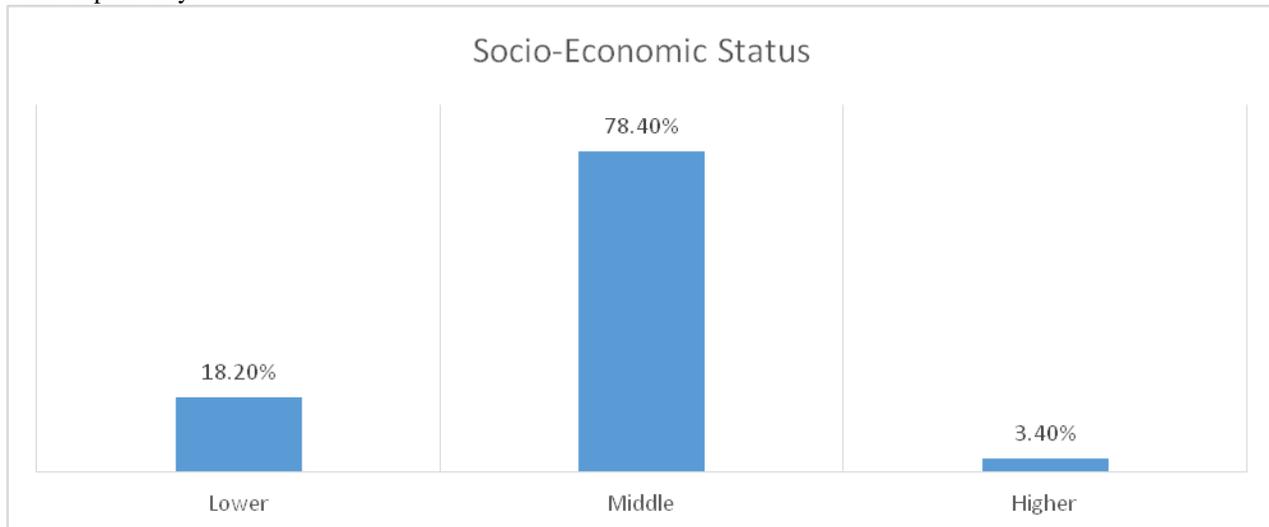
Anonymity and confidentiality of the patients was protected by assigning codes to the data set comprising of the IQCODE scores, instead of names and keeping the data password protected. The data was promised to be discarded a set period of time after completion of the project.

RESULTS:

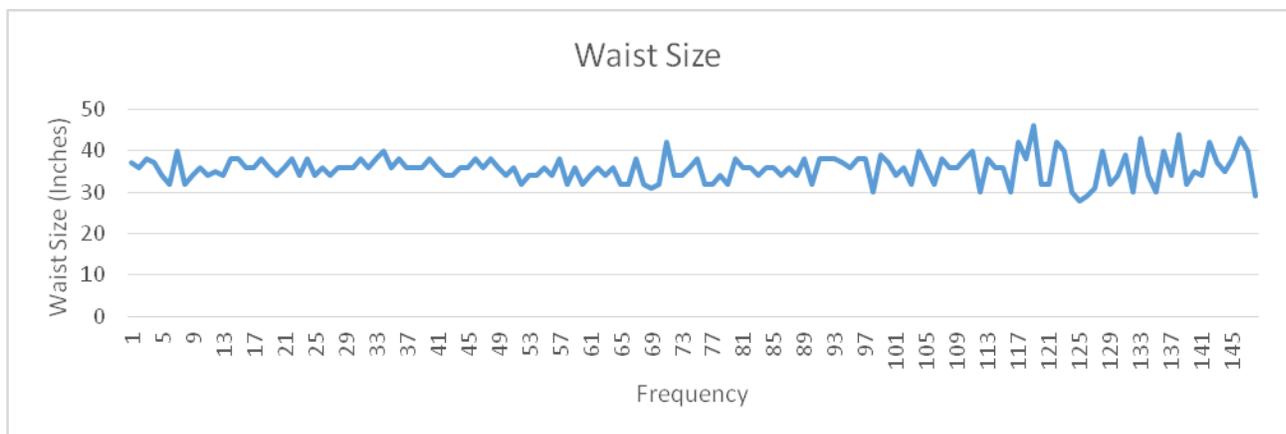
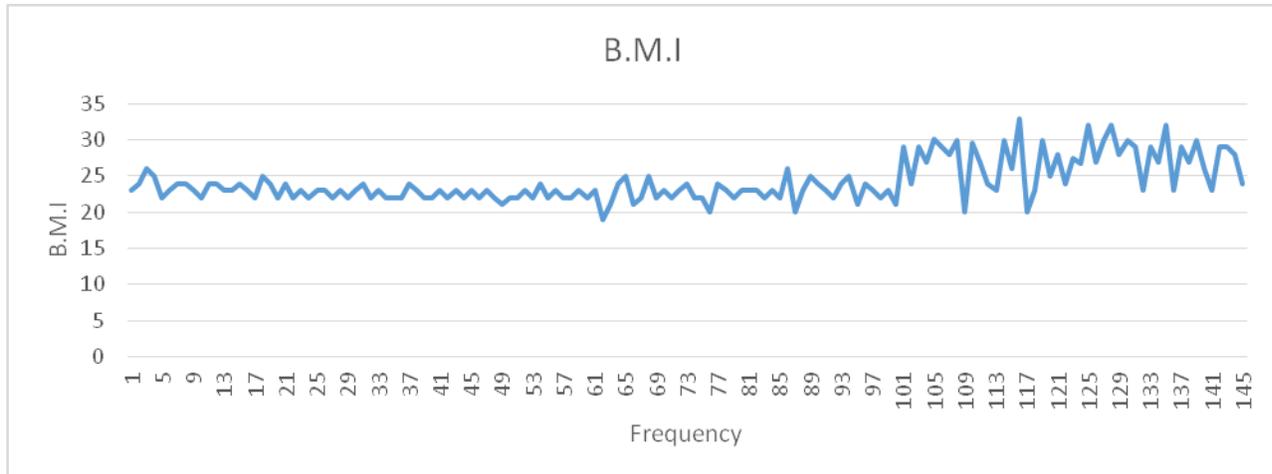
Among the 148 subjects enrolled into the study, 117 were males, while 31 were females and the mean age of the sample was 49 years.



Despite being middle aged or elderly, 71% of the subjects were working full-time. 78.4% of the subjects belonged to the middle socioeconomic class, and remaining 18.2% and 3.4% belonged to the lower and upper socioeconomic class respectively.



The mean waist size of the sample was 36 inches and the mean BMI was 24.



A sizeable proportion of the sample admitted to be suffering from major systematic diseases, lead sedentary lifestyles and consumed imbalanced diets. The mean IQCODE score was 3.52, suggesting mild cognitive impairment among the sample.

DISCUSSION:

Cognitive decline in later life has numerous causes, and each may be associated with different risk or protective factors. Socio-demographic factors show strong associations with functional status in both longitudinal and cross sectional studies. Chronological age is probably the most important factor, with an increase in the relative risk of functional status decline of about 2.0 for each 10-year increase in age. [5]

The brain undergoes pronounced age-associated structural changes in old age. The most obvious is a steady decrease in brain size, balanced by an increase in ventricular spaces and cerebrospinal fluid. Brain atrophy accelerates in old age and shows an anterior-posterior gradient, with the most severe effects occurring in prefrontal regions. Compared with overall brain, age-associated shrinkage is much smaller in the cerebral parenchyma. In the latter, atrophy starts much earlier in life and is more steady

in grey matter (the neuron cell bodies) and cortical thickness than in white matter (the nerve fibers connecting different brain areas). [6, 7]

Also, cerebral dopamine receptor density depletes with age, which plays a central role in regulating attention and in modulating response to contextual stimuli. [8] A variety of mechanisms are likely to be causal in the normative age-associated decline in brain structure, including hypertension, age-associated vascular and microvascular changes, oxidative stress, recurrent inflammation and stress-related corticosteroid levels. [9]

The role of diet and other lifestyle factors in successful brain ageing has been attracting increasing scientific and public interest. Recent findings suggest that improving the diet of older people might help to delay the onset, or slow the progression, of age-associated cognitive decline. [10] Some research supports the importance of a diet rich in B-vitamins,

antioxidants and omega-3s for mental fitness. B-vitamins are essential for maintaining normal brain function and memory. [11]

When considering potential determinants of age-associated cognitive decline, engaged and active lifestyles are often reported as protective. [12] Participation in activities of a mental or intellectually stimulating nature has also been shown to predict reduced cognitive decline. In this domain, the notion of 'use it or lose it' is proposed: the continued deployment of cognitive abilities through activities requiring cognitive effort may have direct effects on the brain, in terms of structure and/or function. [13] This is closely linked to the 'cognitive reserve' hypothesis. Individuals who are more cognitively active or engaged may accrue greater 'reserve capacity' across the life course, and subsequently delay the onset of age-associated cognitive decline or reduce the impact of this. [14]

The main determinants of cognitive reserve are early life cognitive ability (the 'baseline'), education level and occupational complexity, with the former being a strong predictor of the latter two. Second, it is assumed that the ageing brain compensates structural losses in functional areas by recruiting previously unrelated parts of the brain (preferably in the prefrontal cortex and in corresponding contra-hemispheric areas) to take over the role in cognitive functions. [15]

The risk of new onset disability is similar between men and women if other factors such as chronic conditions are controlled for in the multivariate models. Although the incidence of disability is found to be similar for males and females, females survive longer with incident disability than males, explaining the higher disability prevalence among females. [16] Although race seems to play a role for determining the prevalence of disability, this association is also explained by lower socio-economic status in blacks as compared to white people. [17]

CONCLUSION:

Cognitive decline although mild, is preset among the study sample, impairing the ability to learn new skills (such as the use of new machines, gadgets and software), recalling past incidences and previously mastered skills and handling financial matters (particularly immediate purchasing decisions). It should be noted that most of the subjects are working individuals and an impaired cognitive function shall result in poor work performance, increased incidence of errors and a loss to oneself and the society at large.

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