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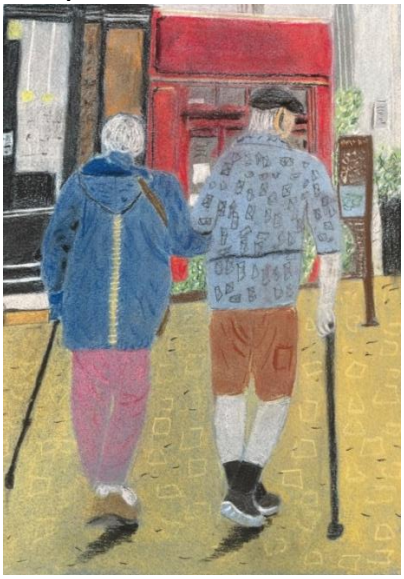

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Editorial

Longevity at sixty: factors influencing life expectancy in old age

Nilamadhab Kar

Abstract

While longevity is increasing in general, factors that can prolong the life of older adults constitute an area to explore. At the same time, it is not just adding years to life, but having increased periods of disability-free life, with increased productivity and functioning. Many factors influence remaining life expectancy at the age of 60 which could be biological, clinical, and psychosocial in nature. The usual ingredients that support a healthy life may help in older adults as well, however, specific efforts to prevent diseases and adequate management of existing physical and mental illnesses are the key factors; along with diet and nutrition, exercise, smoking cessation, socialisation, availability of medical and nursing facilities, and appropriate health policies are other determinants. Efforts to improve health and a disability-free life after the age of 60 need further understanding and research.

Keywords

Aged, Health Behaviour, Longevity, Risk Factors,

Introduction

Although being old cannot be defined just by years of age, the age of 60 has been considered an administrative, statistical, and even clinical milestone in various contexts. However, observations and opinions differ.[1] People age differently, both physical and psychological processes vary among individuals, regions, and races. Only a proportion of the population reaches this age, however, as longevity is generally increasing worldwide, a higher proportion of people are living above the age of 60 years.[2]

The increase in longevity may not be all due to healthy ageing with improved health of a population, but it could be due to the increased medical capability in keeping ailing people alive.[3] It is known that many older adults spend a substantial amount of time with illnesses and disabilities. It would be relevant to study the longevity at 60 years of age of one's life, factors influencing the remaining life expectancy, and whether that can be influenced, precisely prolonged qualitatively.

The reported range of life expectancy at the age of 60 in 2022 worldwide was 14.3 to 29.4 years for females and 11.6 to 25.7 years for males, and the rates for India were 16.8 and 15 years respectively.[4] These estimated figures vary, probably secondary to region and methodology.

Determinants of remaining life expectancy

It is important to study the determinants of remaining life expectancy at around 60-65 years of age. Genes matter in relation to longer life, however, they play only a part in it, and the variations are brought about by health behaviours. The factors that prevent accelerated ageing and age pathologies, with a hope to increase average life span have been a focus of research. The actions that can prolong a healthy life after 60, improving quality of life, are also an interesting area that needs further study.

Available literature suggests that many factors affect longevity at the age of 60. Psychosocial predictors such as academic degree, household income, financial support, and unemployment, have been reported to influence life expectancy at the age of 60 in Germany.[5]

Psychological stress can lead to accelerated ageing,[6] and excess mortality,[7] due to stress-related morbidities. Managing stress well is extremely important for living longer.

Keeping preventable and controllable diseases at bay and taking adequate care of the existing illnesses are the key factors. Clinical predictors such as availability of medical services, staffing levels of nursing homes and services have marginal impact.[5] Other factors that influence longevity are smoking, obesity, and medication use,[3] etc. Alcohol has a complicated relationship with ageing, while excessive alcohol use is agreed to have negative consequences, the benefits of modest alcohol use have been debated. Studies suggest a role of regular, moderate drinking in cognitively healthy longevity,[8] in contrast to even low-risk drinking being associated with higher mortality among older adults with health-related or socioeconomic risk factors.[9]

Lifestyle factors predict greater survival.[10] Remedial suggestions regarding healthy diet, restricted calories, exercise, adequate sleep, weight control, and engaging in leisure activities are well known. The use of antioxidants, melatonin through its influence on circadian rhythms, and peptide geroprotectors,[2] are gaining attention, although more research is needed. Similarly, there are concerns regarding anti-aging measures such as hormone replacement therapy.

Suggestions to consider

Healthful behaviours at a younger age will translate to healthy ageing and prolonged life without illness or

disability. However, adopting these at an older age may still be helpful. Perspectives from the older people themselves regarding successful ageing are physical activity, basic aspects of well-being, positive outlook, satisfaction with life, interpersonal relationship, participation in meaningful activities, and financial security.[11]

Exercise is especially relevant for lengthening active life expectancy, and along with this, shedding excess weight, low-calorie diets, and nutritional adjustments may probably lead to longer and healthier lives. Promoting healthy ageing and supporting older adults to age safely in an age-friendly environment, with a scope of regular monitoring for prevention, early detection and management of ailments are essential. This would need appropriate public health policies and their implementation.

In addition to the above, ensuring financial literacy and improving financial resilience, improving access to health education and services, supporting older adults to remain productive by improving work opportunities for them beyond traditional retirement age, improved facilities for meaningful social connections are various other suggested ways for healthier and longer lives.[12]

It is important to be aware that older adults often experience stress, but are hesitant to discuss the causes, especially abusive experiences, and may not have resources to deal with these themselves. The role of stress management in older adults cannot be overemphasized. It should be multi-pronged, involving proactive support from different sources with a problem-solving approach. Help-seeking by older adults for their psychological stress factors should be encouraged and facilitated.

Conclusion

There are variations in the longevity and disability of older adults, based on sociodemographic and clinical factors. There is a need for more research about the life expectancy at the age of 60, and how to have more disability-free years, with improved quality of life. The research should explore the modifiable factors influencing it, emphasizing the actions that can be taken to increase the chance of healthy ageing and improve the life experience of older adults.

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Case report

Swallowing problems as an indicator for early-stage Alzheimer's disease

Maria Rasool, Ravi Chandavarkar, Qusai Bharmal

Abstract

The relationship between swallowing problems and Alzheimer's disease (AD) has been deliberated in literature, with particular emphasis on dysphagia occurring in the moderate to late stages of dementia. However, emerging research has highlighted the prevalence of swallowing impairments in elderly patients with early-stage AD. This case report focuses on the profound impact of dysphagia resulting in anxiety and depression in the patient, prior to his diagnosis of prodromal AD. The consideration of swallowing problems in a patient as a potential indicator for the investigation and diagnosis of AD is under discussion.

Keywords

Aged, Alzheimer's disease, Anxiety, Deglutition, Depression, Dysphagia, Risk Factors

Introduction

The relationship between Alzheimer's disease (AD) and eating, drinking, and swallowing (EDS) difficulties has been extensively discussed in the literature, with studies largely focusing on symptoms experienced in the elderly with moderate to severe stage dementia. Around 40% of patients with dementia are found to have dysphagia when clinically assessed.[1] The data surrounding the prevalence of dysphagia in the general population is limited and it is estimated to be 20%, whereas for anyone over the age of 60, this is thought to be above 50%.[2] The definition of prodromal AD requires clinical symptoms as well as at least one biomarker reflecting disease pathology (such as through amyloid Positron Emission Tomography scan).[3]

Appetite changes have been reported in 49.5% of patients with early-stage AD and swallowing problems were more commonly reported in late-stage AD.[4] However, more recent research shows that patients with early stages of AD have reported dysphagia and swallowing problems.[5,6,7] In one study the relationship between the severity of AD and incidence of swallowing impairment was evaluated and showed that more patients presented with swallowing disturbances as dementia progressed.[8]

In mild AD, delayed oral transit and pharyngeal response initially result in swallowing difficulties and this can later lead to more significant impairment.[9] Complications from this include dehydration, malnutrition, aspiration pneumonia, and reduced quality of life.[10,11] Increased levels of anxiety and avoidance behaviours during meals due to the fear of choking have also been reported in studies.[5]

In order to prevent these complications, early detection of dysphagia and appropriate management is vital for patients with AD. Various assessment tools have been mentioned in the literature and are currently used in clinical practice.[10] Some of these screening tools include the Eating Assessment Tool-10 (EAT-10) and Volume-Viscosity Swallowing Test (V-VST), which can be effectively used to identify swallowing impairment in the early stage of AD.[5,6,7]

There are many studies reporting the relationship between swallowing difficulties and dementia. However, there are no case reports exploring symptoms of dysphagia with prodromal AD or before an AD diagnosis was made. This case report discusses a patient who suffered with swallowing difficulties that significantly impacted his mental health, 13 years before his diagnosis of prodromal AD was made.

Case presentation

The patient, a 72-year-old gentleman, had no prior history of mental health issues. He had a background of hypertension and type 2 diabetes mellitus. There was no family history of psychiatric disorders, and his upbringing appeared devoid of any significant traumas, such as abuse or bullying. Prior to the incident, he underwent his usual morning routine of waking up, making a cup of tea, and smoking. However, the patient was eventually overwhelmed by a series of cumulative stressors, and this led to emergency intervention after he informed his sister of the self-inflicted wounds to his abdomen and neck.

ENT History and impact on the mental state

At the age of 60, the patient first experienced a "heaviness" in both ears and food sticking in his throat. He was subsequently seen by the Ears, Nose and Throat (ENT) team but despite extensive examination, including flexible nasoendoscopy, barium swallow, and magnetic resonance imaging (MRI) of the cerebellopontine angle mass, a cause could not be found and he was discharged.

Further ENT consultations revealed the persistence of the ear-related symptoms: a crunching sound in the ear on swallowing, solid and liquid dysphagia, and weight loss (initially a stone in 3 weeks). Examination revealed a eustachian tube dysfunction.

The patient's distress continued to escalate due to his persisting symptoms, resulting in multiple emergency department (ED) visits. However, as there was no acute concern he was not admitted. A month prior to his suicide attempt he attended ED with self-inflicted lacerations and was discharged with referral to the Community Mental Health Team. A week later he re-attended ED with depressive and suicidal thoughts and intention and was discharged with diazepam, appropriate advice, and safety netting and referral to the crisis team with community follow-up.

Correspondences with the patient's ENT consultant vividly capture his anguish and desperation, emphasizing his deteriorating quality of life. He wrote 'Each day is a living hell' and that this has been going on for too long, causing him to become disorientated. Another letter, three weeks before the suicide attempt, mentioned that he was 'choking on every mouthful', he was so afraid he might choke to death and he could not go on living like this.

In a follow-up ENT appointment, he reported that he had lost around 15 kilograms in two months and described symptoms of regurgitation. His symptoms previously resolved for one week when prescribed ear drops and therefore, he tried this again along with fluticasone nasules to help with the eustachian tube dysfunction. A computed tomography (CT) scan of the neck was conducted showing no concerning features.

Medical admission

The patient was admitted to a trauma centre with multiple self-inflicted lacerations to his neck and left upper abdomen. Under the ENT team, he had a pan-endoscopy and exploration discovering muscular injuries and a tracheal puncture, necessitating immediate repair. Additionally, a laparoscopic examination was performed due to the abdominal wounds, confirming the abscess of visceral damage.

Simultaneously, the patient was seen by the Liaison Psychiatry team, noting ongoing distress in the hospital with agitation specifically relating to his physical discomfort – for example when having to be nil by mouth due to injury. It was agreed by the medical and liaison teams that he needed to remain in the hospital and under observation under Deprivation of Liberty Safeguards (DOLS) due to a lack of capacity.[12] He discussed his regret over his actions and their effect on his family but still remained frustrated with his condition and his symptoms and dysphagia directly impacting his mental state. His turbulent, and at times abusive, relationship with his sister was explored as another precipitating factor as well as his general impulsive and erratic nature.

In the final week of his admission, his physical condition stabilised and he requested to be discharged home, rather than to a psychiatric facility. He expressed regret for his situation, but this was largely attributed to his current inpatient admission rather than his suicide attempt. Concerns regarding his absconding following discussions regarding his discharge plans warranted hospital detention under an appropriate legal framework. Despite his refusal, it was deemed that he was at high risk to himself did not have mental capacity, and required psychiatric admission for assessment and management.

Psychiatric admission

Once his physical condition stabilised, he was admitted as a psychiatric inpatient. On admission, there was an acknowledgment of guilt and a commitment to abstain from further self-harm. He was started on olanzapine 2.5mg once daily and he progressed well in the hospital, enabling supervised home leave. Intermittent resolution of his dysphagia was noted. He was eventually discharged two months later with an increased olanzapine dose of 7.5mg once daily.

During psychiatric admission, he was seen by the Speech and Language Therapy (SALT) team. A barium swallow revealed findings consistent with dysmotility as minor tracheal aspiration and pooling of contrast in the piriform sinuses were noted. However, it was agreed that he could still have a level 7 diet (normal everyday foods of various textures and sizes), selecting foods the patient felt comfortable with.[13] He was referred to audiology for a pure tone audiometry which indicated a bilateral mild sensorineural hearing loss, most likely due to presbycusis. However, he felt he did not have any significant hearing impairment and declined hearing aids. A CT head showed confluent supratentorial white matter low attenuation changes, consistent with advanced chronic small vessel disease.

Outpatient management

After discharge, he underwent a video fluoroscopy demonstrating moderate to severe dysphagia of sudden onset with an unclear cause. Therefore dysphagia therapy was not recommended.

During follow-up in the SALT clinic, the patient declined to trial compensation maneuvers to reduce the volume and frequency of aspiration and he was not keen to try a modified diet to compensate for the reduced efficiency of swallowing. He was happy to be discharged. He was also referred to the neurodevelopment team for autism spectrum disorder testing and after an Autism Quotient-10, he was classified as not having an Autism Spectrum Disorder (ASD).[14]

Continued outpatient support by the Home Treatment Team (HTT) facilitated improvements in the patient's anxiety and depressive symptoms. He still needed up to 2mg of lorazepam per day when required to help settle his anxiety and fluoxetine 20mg was started.

Investigations and results

A PET scan was arranged as an outpatient to query the possibility of a common neurodegenerative condition. This showed neurodegenerative changes suggesting dementia as well as evidence of vascular disease. An Addenbrooke's Cognitive Examination (ACE III) was completed.[15] The patient scored 84 with a predominant deficit in memory (18/26) and fluency (8/14), indicating the severity of cognitive deficit.

Follow Up

A detailed history was obtained with the patient regarding any symptoms of dementia as he had previously denied any problems, as he wanted to solely focus consultations on his dysphagia symptoms. He explained that he had been forgetful and misplacing household items for a number of years. His sister has noted that he can be confused when discussing his medications, often referring to the wrong ones. He had two falls which he attributed to a change in his gait as it is now slow and at times, he can lose control of his movement. The patient was diagnosed with prodromal AD and an ACE III and neuroimaging will be repeated at a later date.

Discussion

It is plausible to attribute the patient's swallowing difficulties to a prodromal AD diagnosis, given recent literature establishing a correlation between dysphagia and early dementia.[5,6] However, his symptoms manifested well before his prodromal AD diagnosis, with the initial presentation of EDS symptoms dating back a decade and a significant worsening of symptoms one year before his prodromal AD diagnosis. It can be argued that his EDS symptoms may be independent of his AD diagnosis, as dysphagia is also prevalent in adult patients under 60 without a dementia diagnosis. However, this patient also reported symptoms of dementia and had investigations such as an ACE III and PET scan that supported the diagnosis of prodromal AD.

Current literature establishes a relationship between dysphagia and mild to severe AD.[5,7] Some studies advocate for routine screening of swallowing problems in patients with newly diagnosed dementia using various assessment tools.[6] However, this case report goes further to highlight the importance of assessing for cognitive deficits in elderly patients presenting with dysphagia, especially when exhaustive investigations fail to reveal any underlying ENT or physical causes. It is possible that even if a physical abnormality is identified, there may be an underlying concurrent dementia that requires diagnosis and treatment.

Conclusion

Elderly patients with EDS difficulties should undergo a comprehensive cognitive assessment, followed by relevant proactive management strategies. Such patients should be referred to mental health services early, to enable appropriate assessment and intervention.

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The patient has given written informed consent for publication of this case report.

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Research

Experimentation into word generation in subcortical dementia: a study through semantic priming

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Abstract

Background: Semantic priming is the tendency of individuals to recognize semantically related words more easily when presented with a prime. In subcortical dementia, one of the most affected abilities is cognitive linguistics. **Aims:** Our study aims to analyze the semantic abilities of individuals with subcortical dementia through semantic priming paradigms, using the DMDX software. **Method:** Fifteen individuals, aged 31-70 years, were presented with 40 words under the semantic categories of concrete words, synonyms, antonyms, and abstract words, with 10 words in each category. The number of words generated was recorded using the CheckVocal extension of DMDX. **Results:** The results revealed that concrete word generation was the easiest due to its imageability, access to multiple systems, and reduced cognitive demand, involving both hemispheres. In contrast, abstract word generation was the most challenging task due to the high involvement of cognitive faculties such as working memory, attention, and executive functions. **Conclusion:** The subpar performance in abstract word processing can be attributed to factors such as effortful semantic retrieval, less contextual information, lower imageability, familiarity, and frequency of usage.

Keywords

Dementia, Priming, Semantics, Subcortex, Word Generation

Introduction

The idea of priming is one of the most significant concepts in word recognition. It entails presenting material that elicits a reaction prior to a spoken word. Numerous behavioral experiments have shown that words with comparable perceptual characteristics prime one another.[1,2,3,4] The most prevalent form of priming in word recognition tests is semantic priming, which is akin to a context effect. Words that occur prior to the target word and influence its recognition time are referred to as context for the purposes of this paper.[5,6] Semantic priming can be used as a tool for investigating various aspects of perception and cognition, such as word recognition, language comprehension, and knowledge representations.

Dementia is not a homogeneous entity. Patients with various forms of dementia show discrete neuropsychological profiles of intact and degraded abilities, which are consistent with the unique neuropathology linked to each disorder. Semantic dementia (SD) is a gradual cognitive and linguistic loss that predominantly affects word comprehension and associated semantic processing in an individual. Parkinson's disease manifests as a type of subcortical dementia. Parkinson's disease (PD) is characterized by dopaminergic system degradation. Patients with Parkinson's disease have aberrant semantic information processing, with activation and decay rates that are slower than those of neurotypical individuals.

Semantic priming has demonstrated that environmental signals may lead to goal-directed cognition and behavior in the absence of conscious intentions. This concept can be employed by using semantic priming as a method for intervention to strategically influence behavior in accordance with an individual's long-term goals.

A recent study in social psychology suggests that behavior regulation may not always need cognitive guidance and decision-making.[7] Studies using priming approaches, which depend on activating relevant mental representations through external environmental stimuli, have provided this evidence.[8] Research on automatic interpersonal processes has shown that feeling of social warmth,[9,10] and the regulation of maladaptive emotions,[11] for example, can be induced unconsciously by physical sensations, visual images, or semantic concepts. Interventions based on the priming procedure could be administered by multiple providers and communication devices. These interventions aim to regulate emotional states, increase adherence to treatment instructions, or activate mindsets that facilitate adaptive functioning. Integrating the methodology of priming with clinical intervention could contribute to treatment delivery and enrich our understanding of change processes. The objective of the paper was to analyze the semantic abilities of individuals with subcortical dementia through semantic priming paradigms utilizing word generation tasks, using the DMDX software.

Method

The research was executed in two phases within the Neurocommunication Rehabilitation Unit, part of the

Department of Speech Language Pathology at AWH Special College, which specializes in the diagnosis and treatment of communication disorders resulting from neurological conditions. It provides comprehensive therapeutic services, utilizing advanced techniques and technologies to enhance patients' speech and language capabilities.

Phase 1 of the project involved the development of a word list, programming of the stimulus, and participant selection. In Phase 2 the study administration and data analysis were conducted.

Development of word list

Lists of words were developed under 4 experiments in order to assess the effect of semantic priming. The experiments selected were concrete, synonyms, antonyms, and abstract word generation. Synonyms and antonyms were selected because these semantic relations effectively explore the semantic system through priming. Literature also reveals that these are effective in tapping implicit memory functions.[12,13,14] Concrete and abstract words were selected because they represent high-level semantic categories capable of exploring the semantic system extensively. Moreover, these words benefit from a strong word imagery effect in semantic priming.[15,16]

The words were taken from the normal speaking vocabulary of adults. A pilot study was conducted to select words under each domain. Within each domain, a set of 20 words was selected initially and was given to four Malayalam teachers for selecting the 10 most appropriate words (Table 1). The Malayalam teachers were instructed to evaluate and choose the words based on familiarity and frequency of usage. The selected words were given to 10 qualified Speech Language Pathologists to check the appropriateness and suitability of the words.

After finalizing the words, a pilot study was carried out to fix the stimulus presentation duration, to determine the response time limit for experiments under generation tasks. The duration for each response was determined by running DMDX software at different time intervals such as a 5-second trial, a 10-second trial, a 15-second, and 20-second trial on 10 adults in each age group and in 5 subcortical dementia cases to choose the best response time limit. A 20,000 millisecond was found to be the best response time limit for obtaining the responses from all the participants for each word in all the experiments.

Programming of stimulus

The appropriately formulated words were presented with DMDX software Auto mode using the HP Pavilion X360 convertible with a display resolution of 1920X1080. The Time DX and CheckVocal software were installed to record the reaction time as well as their vocal responses.

Participant selection

Fifteen participants in the age range of 31-70 years with subcortical dementia were selected for the study. Participants were selected from our own institute and “Rehabilitation Council of India-approved” Speech Language Therapy clinics and hospitals.

Inclusion criteria

Participants with the diagnosis of subcortical dementia, assessed and confirmed by a neurologist were included. Addenbrooke’s Cognitive Examination-ACE III was carried out by a speech pathologist to confirm dementia following assessment and confirmation from a neurologist.

It was essential for the participants to have Malayalam as their first language. Malayalam is a language belonging to the South Dravidian subgroup of the Dravidian language family. The majority of Malayalam speakers are found in India, where it is the official language of Kerala state and the Lakshadweep union territory.

In addition, the inclusion criteria were at least the 10th standard of education, ability to speak, read, and write Malayalam; physically fit to undergo the test; normal or corrected vision and hearing; s should be right-handed to control for the variable of cross-dominance. Duration of illness should be at least six months to one-year post-onset of dementia.

Instructions given to the participants were: “i. You will see a screen with a word. ii. You are required to generate as many words related to the respective word within the allotted time duration. iii. The type of word generated would vary according to the task. For concrete words, for instance, the directive was to produce as many semantically related words as possible; for synonyms, as many words with a similar meaning; for antonyms, as many opposing words; and for abstract words, as many words that are not imageable. iv. There will be a specific time assigned to each stimulus during the presentation. v. Attend carefully, because the words will be presented only once, and the screen will move on to the next stimulus after the determined time duration.” The participants were given verbal reinforcements as a token of appreciation for their efforts.

Ethical consideration

The study was approved by the institutional ethics committee of AWH Special College under the Kerala University of Health Sciences. All patients provided their informed consent after being informed about the risks, advantages, and potential uses of the research. This was accomplished by describing and demonstrating the experiment to the patient and caretaker. A signed consent document was then obtained.

Results

Table 2 represents the mean, standard deviation, median, minimum, and maximum score of word generation by subcortical dementia. From Table 3 it is evident that maximum scores were obtained for concrete word generation followed by antonyms and synonyms and finally abstract word generation.

Table 1: Word list for the main experiment

Concrete words	Synonym generation	Antonym generation	Abstract word generation
Maavu	Kannu	Satyam	Amma
Kutti	Achan	idatu	Akasham
Appam	Manushyan	puthiyadu	Mazha
Veedu	Vellam	choodu	Kinnar
Amma	Aharam	Aanu	Angadi
Pashu	Akasham	Munnil	School
Sadhya	Kollam	Santosham	Kalyanam
kappal	Thamara	Nanma	Kayikadinam
Chaaya	Ravile	Ravile	Kaadu
Paatram	Jhaaya	Velicham	Ambalam

Table 2: Mean, median, and SD of the number of words generated by individuals with subcortical lesion

Generation Tasks	Mean	SD	Median	Min	Max
Concrete words	32.9	10.9	34.0	17.0	52.0
Synonyms	7.5	2.5	9.0	3.0	10.0
Antonyms	9.1	0.9	9.0	7.0	10.0
Abstract	5.5	2.2	5.0	2.0	10.0
SD: standard deviation					

Table 3: Results of Dunn's pairwise comparison test of the number of words generated by individuals with sub-cortical lesions.

Sample 1-Sample 2	Statistic	Sig.
Abstract-Synonyms	0.867	0.133
Abstract-Antonyms	1.433	0.013
Abstract-Concrete words	3.433	<0.001
Synonyms-Antonyms	-0.567	0.326
Synonyms-Concrete words	2.567	<0.001
Antonyms-Concrete words	2.000	0.001

Results of Dunn's pairwise comparison test revealed that there was evidence of a significant difference ($p<0.05$) in the number of words generated by individuals with subcortical lesions. the lowest number of words was generated in the abstract category, followed by synonyms and antonyms. The best scores were obtained for concrete words. Table 2 shows the results of pairwise comparison between different semantic categories

Discussion

The better performance obtained for concrete words could be attributed to the advantage of imagery of the word, promoting a significant effect on semantic priming compared with non-imageable abstract words. This is referred to as the imagery effect.[15,16] According to the concreteness effect, concrete words are more easily and quickly remembered and recognized than abstract words due to the difference in imageability.15 Evidence on neural activity related to mental imagery includes brain areas involving the sensory-motor processing cortex.[17-23] This observation has been explained by a dual coding model in which words are processed using information stored in both a linguistic semantic system and a nonverbal imagistic semantic system.[24] According to this model, abstract words depend solely on information from the linguistic semantic system, whereas concrete words are influenced by both linguistic and imagistic semantic systems. Concrete words thus have processing advantages over abstract words because they have access to information from multiple systems.[16,25]

Neuroimaging evidence supporting this model has shown that concrete words evoke brain activity in both hemispheres, whereas abstract words are engaged in linguistic-related areas of the left hemisphere; the right hemisphere is more responsive to concrete than abstract words, whereas the left hemisphere displays activity in response to both concrete and abstract words.[26,27,16] A study revealed that the left inferior frontal regions were activated by abstract words, whereas bilateral brain regions such as the angular gyrus and the dorsal prefrontal cortex were more likely to be activated by concrete words.[28] A recent meta-analysis on neuroimaging evidence of abstract and concrete words,[29] indicated that while some studies failed to provide evidence that the processing of concrete words always involves the right hemisphere,[30,31] abstract words are predominantly engaged in the left hemisphere.[32,33] The findings thus far, therefore, are inconclusive.

It has been observed that the number of words generated in the antonym category took less time than for synonyms. An antonym for a word is similar in many conceptual dimensions, yet different from the word in one semantically critical dimension. This opposing dimension constitutes the core of the antonymic relationship between two words, and this polarity reversal for antonym generation is systematically laid out in the left-frontal cortex. Antonymy is a syntagmatic and a paradigmatic relation, and antonym pairs constitute a particular type of construction. For a synonym to get generated, overlaps in collocation, syntagmatic and paradigmatic associations, grammatical functions, meaning and form between synonyms are required, and this process often deteriorates in subcortical dementia. The lesions of subcortical dementia affect the structures caudate nucleus, globus pallidus, and thalamus and connecting fibers of frontal-subcortical circuits.[34,35] This contributes to challenges in semantic priming paradigms,[36-38] which in turn explains the participants' poor performance in synonym generation."

Limitations

Number of participants was low. Age and education of the participants were not collected which could have some influence on the results.

Conclusion

Our findings confirm that cognitive-linguistic functions are significantly hindered by pathologies such as subcortical dementia, even with priming. Participants' performance scores ranked highest for concrete words, followed by antonyms, synonyms, and abstract words.

Abstract word generation posed the greatest challenge, requiring more cognitive-linguistic resources compared to the more accessible concrete words. Synonyms followed abstract words in complexity, relying heavily on semantic working memory. Antonyms, benefiting from polarity opposition, were comparatively easier to generate.

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Review

Wealth and health inequality in the elderly: a narrative review of the challenges in an ageing UK population

Alvin Choondiyanil

Abstract

Background: The United Kingdom's elderly population is projected to rise from 18% in 2023 to over 25% by 2050. Wealth inequality is growing, with the wealthiest 10% owning 57% of wealth while the poorest 50% have less than 5%. **Aims:** This narrative review examines the relationship and factors affecting wealth inequality and health outcomes in UK individuals over 65 years of age. **Methods**: A comprehensive literature search from electronic databases of PubMed, MEDLINE, and Google Scholar, with reports by independent charities and foundations, was conducted involving key search terms of "elderly", "older adults", "wealth inequality", "health outcomes" and "UK". **Results:** The review identifies a wealth-health gradient, where poorer individuals report worse health. Contributing factors include less healthcare access for the poorest elderly despite greater needs, better social connections, and less loneliness for wealthier individuals leading to better health, and lower physical health activity among the poorest correlating with poor physical health measures. **Conclusion:** Public health interventions, policies, and research should address these wealth-based health disparities and promote health ageing.

Keywords

Ageing, Healthy Ageing, Health Inequities, Socioeconomic Factors, United Kingdom

Introduction

The age at which someone is considered elderly varies, but it is generally defined as being over the age of 65.[1] years. The United Kingdom (UK) is experiencing significant demographic changes due to a progressively ageing population. In 2023, 18% of the population was aged 65 and over, this proportion is projected to rise to 25% by 2050, significantly altering the UK's demographics.[2,3] This demographic trend highlights the importance of focusing on healthy ageing within public health discourse. The World Health Organisation (WHO) defines healthy ageing as maintaining and enhancing the "functional ability that enables well-being in older age", which encompasses physical and mental health.[4,5]

Socioeconomic inequalities accumulate and intensify over a lifetime, with some suggesting that wealth is a more accurate measure of socioeconomic status in older age since wealth identifies economic changes across a lifetime.[6-8] Wealth inequality refers to the disparity of financial and physical assets like shares, savings, and real estate between individuals in a society.[9] Among high-income nations, the wealthiest 10% of households hold over 50% of total household wealth.[10] Furthermore, two-thirds of high-income nations see the wealthiest increasing their share of total wealth in recent years.[10] This pattern is seen within the UK whereby the wealthiest 10% owned 57% of total wealth in 2021, an increase from 52.5% in 1995, whilst the poorest 50% held less than 5% of total wealth.[11]

In the context of healthy ageing, wealth inequalities pose significant challenges. Scholars have identified the difficulties in achieving healthy ageing within an increasingly ageing population due to wealth disparities.[12] This presents a public health challenge in the UK, given the growing disparities in wealth among an ageing population, which will become increasingly prevalent in decades to come. The purpose and aim of this narrative review are to examine the health outcomes of the elderly population stratified by wealth as well as common factors such as health access, loneliness, and physical activity that induce health disparities within the elderly population and their intersection with wealth. In addition, this review provides an analysis of these factors, contributing to the UK public health discourse surrounding healthy ageing and wealth inequities.

Methods

This paper employs a narrative review approach to examine and analyse the factors surrounding the relationship between wealth inequality and health outcomes among the elderly population in the UK. A comprehensive literature search strategy was used utilising online academic databases including PubMed, MEDLINE, and Google Scholar as well as reports by independent charities and foundations. Key search terms included combinations of "elderly", "older adults", "wealth inequality", "health outcomes" and "UK". These searches were done between May 2024 and July 2024. These terms were subsequently combined to identify common themes and factors across the included studies to

provide analysis for this review. Given the focus of this review on the UK, this review only included reports that were published in English.

The definition of old age and elderly that was adopted is one commonly used in medical research and the NHS, which classifies individuals aged 65 and above as elderly.[1,13] Consequently, this review focuses on literature involving participants who are aged 65 and over. In instances where studies included patients under 65, particular attention has been paid to ensure that studies analysed have a mean participant age of as close to 65 as possible or above.

This review incorporated studies and reviews from peer-reviewed journals such as the American Journal of Public Health, the Journal of Epidemiology and Public Health, as well as reports from UK-based organisations and societies like the Centre for Ageing Better, the Health Foundation, and the British Geriatrics Society. These sources were selected for their relevance in the fields of public health and geriatrics.

The literature consistently highlighted factors related to individual characteristics and health system dynamics. Three prevalent themes emerged: health system access, mental health, and physical activity. These themes were chosen given their frequent occurrences and impact on unequal health outcomes among the elderly. Although other factors were noted, including them would have expanded the scope of this review too broadly, possibly diluting its focus and depth. Therefore, prioritising these three themes ensured a comprehensive exploration of the key challenges associated with unequal health outcomes among the elderly, particularly concerning wealth.

Wealth and health outcomes in old age

Multiple sources highlight an inverse relationship between old age health and deprivation. Ipsos, a survey organisation, conducted a survey report on behalf of the Care Quality Commission (CQC) of over 4000 elderly people.[14] The survey found that those in more deprived regions are more likely to report long-term conditions, disability, or illness compared to the average.[14] The survey included individuals over 65 who accessed health or social care services in the previous 6 months.[14] Furthermore, for those with disabilities, people living in the most deprived areas are less likely to feel they have received the care they need, either completely or to some extent than those in the least deprived areas.[14] Within the over-65 cohort, individuals in the least deprived areas reported being in better health than those in the most deprived areas. The census for England identified 21% more people aged 65-69 in the least deprived area decile (34.4%) in England reporting very good health, compared to the most deprived area decile (13.1%).[15] This trend of reporting better health in less deprived regions was seen across all subgroups in the census over 65 years.[15] Furthermore, disparities exist between the most and least deprived individuals over 65 concerning the quality of life and life expectancy in individuals. Regarding life expectancy after 65, men and women in the least deprived areas live 5.2 and 5.0 years longer than their peers in the most deprived areas of England.[16] Furthermore, people in the most deprived regions spend more years with disability than those who are least deprived; men in the most and least deprived areas spend 9.7 years and 8.5 years respectively.[16] Therefore, there is clear evidence across multiple reports and surveys that those elderly living in less affluent areas are more likely to have poor health compared to their peers in more affluent regions, and subsequently are more likely to spend more years in ill-health and die earlier.

These findings suggest that older adults in less affluent areas are more likely to experience poor health outcomes and earlier mortality than their more affluent peers. The evidence provided is strong given that the England and Wales Census uses population-wide data with a response rate of 97% of households.[15] A large number of participants provides more accurate data and reduces the margin of error. Furthermore, both the CQC and census findings are based on self-reported health status, which offers a direct insight into perceived healthcare needs based on deprivation, which is related to income and wealth inequality.[17, 18] However, the use of self-reported data introduces the risk of respondents answering in a socially desirable manner, thereby leading to social desirability bias and may not accurately reflect the clinical health condition of respondents.[19, 20]

Despite these limitations, the findings correspond with global literature, which identifies a positive relationship between wealth and health in the elderly population. An observational longitudinal study demonstrated a strong relationship between greater wealth and better health in elderly populations in middle-income countries and high-income nations.[21] In Japan, older adults with lower income have less healthy teeth than older adults with higher income, while in the UK, those in the most deprived quintile are 2.45 times more at risk of developing type 2 diabetes mellitus than older people in the least socio-economically deprived quintile.[22, 23] Given that older adults with less wealth spend more years over 65 with disabilities, there is a greater likelihood that this subgroup will be prescribed medications, leading to an increased risk of polypharmacy compared to wealthier peers as seen in a recent systematic review on socioeconomic variation and polypharmacy.[24] A longitudinal study identified more than twice as many deaths from cardiovascular disease in older men in the most income-deprived cohort compared to the least income-deprived quintile in the UK.[25] The relationship identified within the elderly population demonstrates the appearance of a “wealth-health” gradient, whereby those with more wealth are healthier than those with less wealth as they age.[12] Therefore there is evidence of a gradient, whereby those wealthier experience better health outcomes across various health measures than those less wealthy.

Health access

Healthcare access is vital in empowering people to be healthy, however is often an unmet need, affecting the

elderly the most. Healthcare access particularly concerns the UK elderly population, who frequently utilise healthcare services.[26, 27] The British Geriatrics Society reports that elderly people account for over 40% of UK hospital admissions and occupy two-thirds of inpatient beds.[28] Healthcare access is crucial for achieving healthy ageing in the elderly, with studies indicating that accessible healthcare for chronic conditions and adequate screening promotes healthy ageing in high-income countries.[29, 30] However, global literature and organisations acknowledge poor healthcare access worldwide, especially for treatments like surgery and chemotherapy in older adults.[31-33] Within the UK, those elderly who are most deprived have the least access to healthcare services, an analysis of the pattern of telephone calls to the National Health Service's telephone healthcare advice service identified that women over 60 years old in deprived areas were under-represented in the uptake of this telehealth service.[34]

Within the older population, those most economically deprived experience the greatest barriers to healthcare access. Economic barriers are identified in healthcare, suggesting disparities between health needs and access in the elderly population.[26] Studies demonstrate that less deprived cohorts are more likely to access healthcare, especially preventative services like hearing test screenings.[35] In Europe, the most deprived elderly populations experience longer wait times for non-emergency surgery.[36] One study further establishes a correlation between increased income and reduced wait times for specialist care, underscoring the role of income in socioeconomic deprivation.[36]

Findings from the UK correlate with the findings of economic barriers and health access across multiple studies in the USA and Europe. An Ipsos survey for the CQC identified that 58% of elderly people in the most deprived areas compared to 67% in the least deprived areas accessed more than 3 health services in the previous 6 months.[14] This disparity presents a significant challenge as eliminating access variations between wealth groups in the elderly population is crucial to promoting healthy ageing across the socioeconomic strata.[12] This demonstrates how the most economically deprived older adults have poorer access to healthcare services than their wealthier counterparts in the UK.

Paradoxically, despite having less ability to access healthcare services, the least wealthy often have greater healthcare needs, and vice versa.[37, 38] This provides a challenge to healthcare services, as economically deprived individuals are more likely to be frail and spend more years of their lives over 65 in disability compared to their wealthier counterparts.[16, 38, 39] This relationship was first identified by Dr Julian Tudor Hart as the "Inverse Care Law", which posits that the availability of quality healthcare is inversely related to the population's needs.[37] This influential concept provides a framework for understanding the relationship between health needs and access across the wealth cohorts that persist to the present day.[37, 39, 40] Those least wealthy in the elderly population need more healthcare services given poorer health, yet lack access to these healthcare services, this is a clear example of the wider public health notion of the Inverse Care Law that is still observed in the present day.

While healthcare access is crucial, the literature suggests it is not the sole factor in improving health outcomes.[12] A study in Taiwan demonstrated that increased healthcare access and utilisation particularly in lower-income groups, does not lead to reductions in mortality or improvements in self-perceived health.[41] This finding suggests that differences in objective and subjective health outcomes persist, despite improved access, between income and wealth deciles, therefore highlighting that other factors contribute to differences in health outcomes. Therefore, healthcare access is a key component in reducing health inequalities in the elderly population; however, it should not be considered the sole factor in reducing health inequalities and healthy ageing in the elderly.

Loneliness and social connections

Loneliness among the elderly population is a significant public health concern with wide-ranging impacts on physical and mental health. Loneliness is defined as a negative feeling stemming from an individual's perception of deficient social relationships with greater incidence as people age.[42] In the UK, the prevalence of loneliness is substantial, as evidenced in an 8-year longitudinal study of individuals over 65 years, which identified 9% as severely lonely, and 30% reporting occasional loneliness.[43] These findings are noteworthy given the established relationship between loneliness and poor health outcomes, including physical health deterioration.[43,44] Furthermore, a comprehensive review finds loneliness as a core theme precipitating poor health outcomes in the elderly.[44] These outcomes include depression, motor and cognitive decline, malnutrition, and coronary heart disease.[44] However, the Centre for Ageing Better (CAB) highlights that drawing conclusions about loneliness in the elderly population can be challenging given the sparse literature in this field and that data on this topic can be analysed in various ways.[45]

Although some authors in the literature explore how loneliness intersects with wealth inequality in the elderly population, others, like the CAB, argue that wealth inequalities, loneliness, and social connections in the elderly appear to be novel topics of research with a limited evidence base.[45-47] Nevertheless, one cross-sectional analysis of a survey of elderly health in Europe presents evidence arguing that the risk of loneliness is inversely correlated with wealth, being highest in the least wealthy cohort and lowest in the wealthiest.[47] They conclude that loneliness stratified by wealth bands in the elderly population constitutes a pressing public health issue.

Similarly, the CAB further identifies that social connections among the elderly, which are related to loneliness, are more prevalent in areas of higher wealth, partly due to increased engagement in leisure activities.[45] This relationship is corroborated by other studies,

particularly those focused on the UK. A cross-sectional analysis of longitudinal data reveals that wealthier cohorts of the elderly population are more likely to engage in hobbies than their less affluent counterparts.[48] This disparity is argued to arise since participation in leisure activities for the elderly requires utilising saved assets and earnings, resources more readily available to the wealthy. Given that hobbies constitute an important element of social connectivity in the elderly, this wealth-based difference in leisure engagement has significant implications for social connections.[49,50] The relationship between greater social connections and increased wealth is particularly salient in the context of loneliness since loneliness can arise from a lack of social connections.[51] Consequently, wealthier elderly individuals are more likely to maintain better social connections and experience less loneliness, with their greater participation in hobbies serving as a key contributing factor to this relationship.

Physical activity

Physical activity plays an important role in mitigating health burdens in the elderly. Multiple studies including systematic reviews illustrate that physical activity is a protective factor against cognitive decline, dementia, cardiovascular disease, diabetes, and stroke incidence in older adults.[52-55] Meta-analyses and Cochrane reviews provide robust evidence that physical activity in the elderly contributes to maintaining quality of life and reducing the risk of falls.[55,56] Recognising these health benefits, the World Health Organisation strongly recommends between 150-300 minutes of moderate physical activity a week for the elderly.[57]

However, within the UK notable disparities exist in physical activity levels based on wealth. Multiple reports indicate that elderly individuals residing in wealthier regions are more active than their counterparts from poorer regions. An analysis by the CAB reveals that elderly people in the poorest decile region in England were more than twice as likely to be active for less than 30 minutes per week compared to those in the wealthiest decile.[14,16] Given the importance of physical activity in maintaining health and preventing deterioration in health, physical activity disparity may contribute to the broader health inequalities within the elderly population based on wealth.

It is important to note that some of these reports, like the reports by the CAB and the CQC, measure participants' subjective views on their physical activity. This methodology introduces the risk of a measurement error between the data collected and the true level of physical activity of participants. This limitation is acknowledged in the literature concerning physical activity, with some highlighting disparities between subjective and objective reports of physical activity due to self-report bias.[58,59] Hence it is argued that self-report measures should be interpreted cautiously when assessing physical activity interventions.[58,59] Therefore some of the literature findings utilise self-reporting, which risks bias between the report and the true level of physical health.

While there is a lack of literature concerning objective physical health measures and their intersection with wealth inequalities in the elderly, an outcome-wide analysis in the UK, provides some insight. The study, with a mean participant age of 64.4 years, identified that less wealthy individuals exhibited poorer physical capabilities than their wealthier counterparts.[6] The grip strength of the wealthiest 25% of participants was significantly greater than the poorest 25% of participants.[6] Despite being a niche area of research, this provides evidence of objective physical activity disparities existing along a wealth gradient, with many of the participants in the study nearing the age to be considered old age.

Limitations

This review acknowledges several limitations. Firstly some studies and reports included self-reported data, which can introduce bias and affect the reliability of the findings. Additionally, the research on certain themes like physical activity is still emerging and is limited, therefore constraining the depth of analysis possible. There is also variability in how different studies define the elderly population, with some considering 65 as the threshold while others use different age benchmarks, therefore possibly impacting the comparability between results and studies.[13] Finally, this review was conducted by a single researcher, which may introduce the potential for bias, despite efforts to maintain objectivity, particularly in study selection and data interpretation.

Table 1. Factors influencing health disparities, between the wealthiest and poorest elderly population

Factors	Wealthiest elderly	Poorest elderly
Health access	Better access to health services despite fewer health needs.	Poorer access to health services despite greater health needs.
Loneliness and social connection	Lower risk of loneliness. More likely to engage in hobbies, contributing to better social connections.	High risk of loneliness. Less likely to engage in leisure activities, contributing to poorer social connections.
Physical activity	More physically active. Better physical health capabilities (i.e. grip strength).	Less physically active. Poorer physical health capabilities (i.e. grip strength).

Conclusion

This comprehensive review has illustrated the profound health impacts of wealth inequality among the elderly population and identified the contributing factors to these health disparities. The evidence presented identifies a positive relationship between wealth and health in older adults, manifesting as a wealth-health gradient where wealthier individuals experience better health outcomes as they age compared to their less wealthy counterparts. Three contributors to wealth-based health disparities in the elderly have been identified as summarised below.

Health access: The review demonstrates that poorer elderly individuals have, despite having greater health needs, experienced reduced access to healthcare services, compared to their more affluent peers. This phenomenon exemplifies the Inverse Care Law, although it is acknowledged that healthcare access alone does not fully account for health disparities in this population.

Loneliness and social connections: Loneliness increases as people age and has physical and mental health implications that disproportionately affect poorer elderly individuals, who are more likely or experience loneliness and poorer social connections, thereby having fewer opportunities to engage in social activities and hobbies compared to their wealthier counterparts.

Physical activity: This is a niche area of research which finds that wealth-based disparities in physical activity levels among the elderly population have been observed, with wealthier individuals having higher activity levels. While much of the data is self-reported, limited objective measures support these findings.

This is an area of public health of importance given that the proportion of the elderly in the UK is growing, as is wealth inequality in the UK. Addressing these disparities particularly in healthcare access, loneliness, and physical activity among the less affluent elderly, is an emerging public health challenge. Future research should focus on developing and implementing public health policies to mitigate wealth-based health inequalities, ensuring that healthy ageing occurs across all wealth cohorts in the elderly population.

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Original article

Citalopram and escitalopram in older adults and associated QTc prolongation: A clinical audit

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Abstract

Background: Citalopram and escitalopram are commonly used serotonin-specific reuptake inhibitors (SSRIs) for the treatment of depression and anxiety; which are known to cause corrected QT interval (QTc) prolongation. **Methods:** In a sample of patients in older adult psychiatry who were prescribed citalopram or escitalopram, the doses, history of QTc prolongation, concurrent medications that may prolong QTc, electrocardiogram (ECG) reviews, and any discussion about the risk were audited. **Results:** The sample consisted of 17 older adult patients aged 65 years or more. Most of the patients (94.1%) were prescribed citalopram and only one patient was on escitalopram. Citalopram was prescribed commonly at 20mg (64.7%), and two (1.8%) patients were above the recommended dose for older adults. Escitalopram was within the recommended dose. There was no history of QTc prolongation in any patient. Concurrent medications that could prolong QTc were identified in 35.3% of the patients; all of these were antipsychotics. A small proportion (11.8%) of the patients had documentation stating QTc prolongation and arrhythmia risks for citalopram or escitalopram. A review of ECG when initiating or adjusting treatment was noted in only one patient. **Conclusion:** Although citalopram and escitalopram dosages were within the recommended limit, a considerable proportion of patients had concurrent medications with an additional risk of prolonging QTc. It is essential for health professionals to discuss and provide written information about the cardiac risk associated with citalopram and escitalopram with older patients and their caregivers.

Keywords

Antidepressants, Cardiac Risk, Citalopram, Escitalopram, Electrocardiogram, Old Age Psychiatry, Qtc

Introduction

Citalopram and escitalopram are serotonin-specific reuptake inhibitors (SSRI) used for the treatment of major depressive disorder, panic disorder, and obsessive-compulsive disorder.[1] These medications are known to cause corrected QT interval (QTc) prolongation, with risks of further arrhythmias.[2–4] QTc prolongation and Torsades de Pointes have been reported to be associated with citalopram.[5] Elderly patients have a higher vulnerability to the side effects of the drugs due to decreased metabolism and elimination, caused by normal aging processes. QTc gets prolonged with age and contributes to the risk of ventricular arrhythmia, Torsades de Pointes, and cardiac mortality.[6] A study reported that more than 10% of patients in a geriatric ward had drug-related long QT syndrome (LQTS) with a QTc interval of more than 500 ms, and a majority of them were prescribed at least one QT-prolonging drug.[7]

Considering the cardiac side effects, the maximum dose of both medications has therefore been reviewed by the Medicines Healthcare Regulatory Agency (MHRA).[8] The MHRA guidance suggests a maximum daily dose of 20mg of citalopram and 10mg of escitalopram in the elderly population.[8] It was suggested that the patients prescribed higher than these recommended dosages should have their treatment reviewed. It was highlighted that citalopram and escitalopram may have an additive effect on other drugs that prolong the QT interval. Co-administration of citalopram and escitalopram with medicines that prolong the QT interval was therefore contraindicated. The examples were antipsychotics (e.g., phenothiazine derivatives, haloperidol), tricyclic antidepressants, some antimicrobial agents (e.g., sparfloxacin, moxifloxacin, erythromycin IV, pentamidine, antimalaria treatment, particularly halofantrine), some antihistamines (astemizole, mizolastine), some antiretrovirals (e.g., ritonavir, saquinavir, lopinavir) and class IA and III antiarrhythmics (e.g., amiodarone, dronedarone, quinidine).[8]

Standards

Clinical practice standards for this audit are based on the MHRA guidance.[8] This states that the dose in the elderly (above 65 years of age) should be a maximum of citalopram 20mg, or escitalopram 10mg. This maximum daily dose should also be applicable for adults with hepatic impairment. Patients on citalopram or escitalopram should be informed about the risk of QT prolongation. There should be documentation about the discussion of the risk and the patient's consent to the treatment. In addition, an ECG must be requested at initiation or if concurrent medication known to prolong QT interval is to be continued.

Objectives

This audit aimed to explore the prescribing patterns of citalopram and escitalopram in a community sample of older adult mental health patients and to identify where prescribing practice meets the nationally agreed MHRA standards and where practice could be improved. This may inform future prescribers of the QTc risks of certain medications and appropriate decisions can be made.

Method

The clinical audit was conducted in June 2023 in an older adult psychiatry service covering a city in West Midlands, UK. The patients belonged to various teams under the older adult community mental health services, which included the Enhanced Community Mental Health Team for Older Adults (ECMHT), Memory Assessment Service (MAS), and Home Treatment Team (HTT).

The sample was identified by clinicians and doctors who identified patients from their caseloads. In addition, a manual search of recent clinic letters was conducted to identify further patients. All patients on citalopram and escitalopram who were identified in the above process were included and no patients were excluded.

Data were collected using an audit tool, agreed upon by the team. Specific information collected included the antidepressant medication and the prescribed dose; any risk factors related to increased QTc risk with citalopram/escitalopram e.g. history of QT prolongation or hepatic disease; any concurrent medications with the risk QTc prolongation prescribed alongside citalopram/escitalopram; documentation that the risks/symptoms of QTc and arrhythmia were explained to the patient, and review of ECG.

The data was collected by accessing and assessing the electronic patient records, related health records, and documents. The timeframe we looked at was from the first contact with the patient as mentioned in the electronic record. The data was entered into an audit tool in Microsoft Excel. This was quality-checked and analysed using appropriate statistics. The project was approved as a clinical audit by the Trust.

Results

The sample included 17 patients in total who were prescribed citalopram or escitalopram. Most of them (n: 15, 88.2%) were female; 5 (29.4%) patients were between 65-74 years of age, 8 (47.1%) were aged between 75-84 years, and 4 (23.5%) patients were 85 or above. There were 13 (76.5%) Caucasian, 3 (17.6%) Asian, and ethnicity of one was not known. There was no history of hepatic disease or previous QTc prolongation in this sample. Less than half (n: 7, 41.2%) of patients had the diagnosis of depressive disorders. Other diagnoses were dementia (n: 5, 29.4%), bipolar disorder (n: 2, 11.8%), one each with paranoid schizophrenia, anxiety or panic disorders, and alcohol-related brain injury.

Considering doses of medications, citalopram was prescribed at 10 mg for 3 (17.6%) patients, 20mg for 11 (64.7%), 30 mg for one (5.9%), 40 mg for one (5.9%), and escitalopram 10mg for one (5.9%) patient. Concurrent medications that were associated with prolonged QTc were prescribed in 6 (35.3%) patients, all of these were antipsychotics. There were no patients prescribed a high dose of citalopram/escitalopram and on concurrent medication with QTc prolongation risk.

Only two (11.8%) patients had documentation clearly stating the QTc prolongation and arrhythmia risks for citalopram or escitalopram and only one (5.9%) patient had documentation of a review of ECG when initiating or adjusting treatment that may affect a patient's heart rhythm. All of the patients had sufficient communication with the general practitioner (GP) regarding their medications.

Discussion

This audit provided insight into prescribing practices after 2014 MHRA guidance regarding dose-dependent QTc prolongation associated with citalopram and escitalopram. Most patients had prescriptions within the recommended dosage for older adults; however, there is a need to adhere to the guidance and deviations should be acknowledged with appropriate reasons. Nonetheless, a study in a geriatric setting suggested that for patients who are already on higher dosage, the guidance should be weighed on an individual patient basis, taking into consideration all potential risk factors.[9]

There was a substantial proportion of patients (35.3%) who were on concurrent medications that could also prolong QTc and therefore posed a risk. Interestingly in this sample, the concurrent medication was always antipsychotic drugs. It may be highlighted that the degree of QTc prolongation varies between antipsychotics and is dose-dependent, and arrhythmias are more likely to occur if drug-induced QTc prolongation coexists with individual vulnerability with various clinical conditions along with old age.[10]

With all patients, there was good communication with the patient's GP via letters regarding medications. The communications were clear about medications changed, doses altered, or continued as prescribed previously. It is important to note that the vast majority of medications were initiated by the patient's GP and therefore they hold responsibility for the initial risk discussions. Without access to GP records, it was difficult to confirm the initial discussion in primary care. However, as a secondary care service, when deciding to start or alter medications known to prolong QTc, it may be advisable to discuss the risks again and review an ECG. It is better to provide written information to the patients and caregivers regarding this.

Several learning points were identified. In older adults, before starting new psychiatric medications, it is essential to take a detailed history of cardiac risk factors and to evaluate medications the patient is already taking that can prolong QTc. Appropriate investigations including ECG,

should be done, which may also include electrolytes,[11] The medications with lower risk of QTc prolongation should be considered, when possible. The side effects and risks should be discussed in detail with the patient and their caregivers, and adequately documented. It is important to provide written information as well.

Limitations

There were a few limitations in this audit. There were initial difficulties in identifying the patients who were on the specific medications, as there was no search function in the current version of the electronic record. This would be beneficial to identify appropriate samples and improve patient safety by flagging alerts for clinicians at potentially harmful interactions or combinations of medications. There was no access to primary care health records, which might help to glean the discussions about medications and side effects conducted at the initiation of the prescriptions. Details of concurrent medications and their dosages were not collected.

Conclusion

It is essential to review patients who were prescribed higher than recommended doses of citalopram or escitalopram based on their age and those who are on concurrent medications that are known to prolong QTc. While prescribing medications with the potential of increasing QTc and risk of arrhythmia, the clinical discussions should be detailed and documented. This should highlight the associated risk because of the concurrent other medications. It is also essential to review the ECG of older patients who are being prescribed medications with the potential of increasing QTc.

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Creative writing

An owl cries

Teresa Black

I visit my friend whose decline pulls at me,
alone, she panics in the night.
I read poems for consolation,
so long, the grieving.

Slowing, she halts, comes to a stop.
Recites the mantra to get going:
Stop, plant feet, fix point, sway, go.
Only the swaying helps.
Too much is parting, dissolving;
an owl cries in the night.

Author information: Teresa Black, FRCPsych, Former Consultant Psychiatrist, UK. Teresa Black writes poetry and prose, also under the name Heeks, and has been writing more poetry since retirement. She believes that poetry is a powerful medium for addressing difficult subject matter including illness and bereavement.

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Information

Sociocultural programmes as vehicles for enriching community lives of older adults

Aditya Kumar Jena

GeriCaRe (Geriatric Care and Research Organisation) in association with a local voluntary organisation (Jana Kalyan Samiti) organized a sociocultural programme in Arnapal, a rural area around seven kilometres from Bhadrak town on 24 November 2024 (Fig 1). The programme was supported by the Quality of Life Research and Development Foundation (QoLReF) and the Institute of Insight.

The meeting was addressed by Harish Chandra Kar, Arun Kumar Patra, BScAg; Dr Soudamini Dhal, MD; Aditya Kumar Jena, MA; Debasmita Mishra, MA, BEd; Mr Sidheswar Sahu, MA; and Dr Nilamadhab Kar, MD. It was attended by more than fifty local residents. Key ingredients of the programme were improved socialisation and interactions among participants. A specific medium was sharing poems, reciting, and group (choir) singing. The intergenerational meeting was appreciated by the older adults who valued the experience. It is known that singing is a health-promoting activity;[1] and choir singing can help the cognition and well-being of older adults.[2] It was suggested that more such meetings should be held regularly on various themes relevant to the community, encouraging participation from older adults in these activities.

Fig 1: A section of attendees

Arnapal, 24th November 2024, community programme

There were suggestions for various activities to improve the quality of life in the community, e.g. group physical activities such as yoga, choir singing, using musical instruments, encouraging folk dance, sharing a community feast, etc. It appeared that besides family and religious functions, there was no real scope of social and community interaction for the community dwellers, although there were lots of scope and opportunities. It has been reported that older adults engage in more activities through community participation,[3] it could be physical, social, and cultural activities. Community-based interventions improve physical activity and promote social participation in older adults.[4] All these community activities improve the motivation and well-being of older adults.[5]

The meeting was followed by a Health Check-up camp, coordinated by Dr Nilamadhab Kar. In addition to the support from the local healthcare services, periodic health camps provide a chance for interaction and health education for the local people. This was highly appreciated. Health literacy especially the awareness about mental health issues is considerably low in the communities;[6] and there should be efforts to improve that through public education, focused group interaction, and incorporating these in various curricula. Annual health camps organised by GeriCaRe with the support of QoLReF have been really useful and have been highly appreciated by the community.

Panini Samman, 2024

Geriatric Care and Research Organisation, (GeriCaRe) confers Panini Samman to individuals for their outstanding work supporting the care of older adults in various aspects and their lifetime contribution towards improving the health and sociocultural milieu of the population.

The winner of the Panini Samman 2024 is Mrs Tapati Panigrahi, for her compassionate, philanthropic activities and endeavour to take quality care of needy older adults. She takes personal care of the older adults, supports their treatment and subsistence costs; sometimes providing shelter to them in her own house. She is planning to support older adults through an old-age care home. She supports health camps for older adults. She also takes care of financially compromised children, orphans, and disabled people. She supports children in various schools for their educational, vocational, and creative activities. She is interested in environmental issues and has organised tree planting at various places including institutional campuses, encouraging school children and local organisations. Most of her charitable work is done through the Konark Foundation. Besides social service, she spends time writing poems and articles many of which have been published in magazines and literary pages of the newspapers.

Healthy Ageing 2024

The Healthy Ageing conference organised by GeriCaRe involves older adults, their family caregivers, trained caregivers, and professionals working in various aspects of health and social care of older adults; along with the interested general public. This is a free-to-attend conference that shares practical knowledge based on recent advances in the field and evidence base. One of the objectives of this conference is to improve awareness among the general public and older adults, their caregivers, and professionals about the recent advances and evidence-based methods of taking care of the elderly. The topics include not only physical and mental health but also interpersonal, social, legal, and other related issues. It tries to improve clarity about the issues brought about by older adults and their caregivers in an interactive way. Public education not only improves knowledgebase and health literacy,[7] but it is also known to be an effective way of facilitating intervention and help-seeking for health and psychosocial issues.[8] It is reported that non-professional caregivers are best placed to receive and disseminate health-related educational information for the older adults in the community.[9]

The conference was held on 21st December 2024, on the World Meditation Day. Dr Tushar Kanti Das, MD gave a talk on practical actions older adults can take to remain healthy and active. He highlighted the importance of preventing illnesses and spending more time and resources on promoting health. He enumerated specific evidence-based and culture-appropriate points as carry-home messages.

An updated and revised version of the Handbook on Healthy Ageing is provided to the attendees. This book covers healthy lifestyle, exercise, sleep hygiene, socialisation, stress management, information about common illnesses in older adults, care of older adults at home, online resources for older adults and their caregivers, information about common blood investigations and the results, improving literacy about medications, various policies and laws in support of older adults, etc. It also gives information about specific illnesses such as angina and heart attack, pain management, depression and dementia, oral care, preventing falls, and many others. Contact details of various organisations working in the field of old age care are also provided.

Acknowledgment

GeriCaRe appreciates the support from Dr Tushar Kanti Das, MD; Dr Prasanta Mohapatra, MD; Dr Namita Rath, PhD; Dr Anupama Senapati, PhD; Dr Soudamini Dhal, MD, Sasmita Kar, MSc, PgDDE, Dinabandhu Panda, MA, MPhil, and Gayadhar Panigraphi, MA. The community programme in the village was supported by Mayadhar Kar and Jagannath Kar. The GenX studios, Bhubaneswar arranged for audiovisual presentation, recording, and postproduction work on videos and online. Quality of Life Research and Development Foundation (QoLReF) India and The Institute of Insight, United Kingdom supported the programme.

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Manuscript Preparation

Instructions for authors

Introduction

The *Journal of Geriatric Care and Research (JGCR)* (ISSN 2397-5628) is the official publication of Geriatric Care and Research Organisation (GeriCaRe).

Aims and scope

JGCR publishes articles from all fields relevant to old age, with an objective of encouraging evidence based practice in the care of elderly and to share information about good practice.

It is a multidisciplinary, peer-reviewed, scholarly journal covering diverse areas such as geriatric medicine, psychiatry, neurology, nursing care, end of life care, public health and related fields like gerontology, sociology, psychology, culture and law along with Allied Health Sciences like occupational therapy and physiotherapy, etc. Examples of broad areas covered by the journal are: Care and intervention for various specific conditions, disorders or disabilities, standards of care, examples of good practice, end-of-life care, elder abuse and its prevention, legal aspects relevant to old age and support; cultural and ethical issues associated with care, etc. Its readership includes not only the professionals in these fields but also older persons and their caregivers.

Besides regular issues, theme based special issues focusing one aspect of care are also published periodically.

Editorial process

The *JGCR* follows in principle the Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals by the International Committee of Medical Journal Editors (ICMJE) and the Committee on Publication Ethics (COPE).

Contributions for *JGCR* are accepted for publication on the condition that their substance (whole or part) has not been published or submitted for publication elsewhere, including internet. If there are other papers from same database, then the authors must send all details of previous or simultaneous submissions.

All submitted articles are peer reviewed. At the first step, the articles are assessed by the editorial board for its suitability for the formal review.

If found suitable, the manuscripts undergo a double-blind peer review. The suggestions received from reviewers are conveyed to the corresponding author. When appropriate, the author is requested to provide a point by point response to reviewers' comments and submit a revised version of the manuscript.

Manuscripts accepted for publication are copy-edited to improve readability and to ensure conformity with *JGCR* style.

Authorship

Authorship credit should be based only on substantial contribution to:

- Conception and design, or analysis and interpretation of data
- Drafting the article or revising it critically for important intellectual content, and
- Final approval of the version to be published

All these conditions must be met. Participation solely in the collection of data or the acquisition of funding does not justify authorship. In addition, the corresponding author must ensure that there is no one else who fulfils the criteria but has not been included as an author.

Group authorship is permitted, but in this case individual authors will not be cited personally.

If a professional medical writer was used for manuscript preparation, their name and contact details must be given in the acknowledgement and any conflicts of interest must be disclosed.

The corresponding author must sign the contributors form on behalf of all the authors, once a manuscript has been accepted. This author must take responsibility for keeping all other named authors informed of the paper's progress.

Unless otherwise stated corresponding author will be considered as the guarantor of the article. However one or more authors/contributors can be guarantor. The guarantor accepts full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish.

Declaration of competing interest

All submissions to the *JGCR* (including editorials and letters to the Editor) require a declaration of competing interest. This should list fees and grants from, employment by, consultancy for, shared ownership in, or any close relationship with, at any time over the preceding three years, an organisation whose interests may be affected by the publication of the paper.

Ethics approval of research

The *JGCR* expects authors to follow the World Association's Declaration of Helsinki and base their article on researches conducted in a way that is morally and ethically acceptable. The research protocol must have been approved by a locally appointed ethics committee or institutional review board.

Every research article must include a statement that the investigators obtained ethical approval for the study (or an explanation of why ethical approval was not needed) in the methods section of the manuscript with the name and location of the approving ethics committee(s).

Patient consent and confidentiality

A statement regarding informed consent must be included in the methodology. Studies involving humans must have written informed consent from the patients. Where the individual is not able to give informed consent for lack of mental capacity, it should be obtained from a relative (ideally next of kin), legal representative or other authorised person. If the patient is dead, the authors should seek permission from a relative (ideally next of kin), legal representative (usually next of kin) or other authorised person as a matter of medical ethics. If consent cannot be obtained, the head of medical team/hospital or legal team of the authors' institute must take responsibility that exhaustive attempts have been made to contact the family and that the paper has been sufficiently anonymised not to cause harm to the patient's family. Anonymisation means that neither the patient nor anyone could identify the patient with certainty. Such anonymisation might, at an extreme, involve making the authors of the article anonymous.

The authors should check the specific laws in their country. Contributors should be aware of the risk of complaint by individuals in respect of breach of confidentiality and defamation; and must archive the signed informed consent form.

The process used to assess the subject's capacity to give informed consent and safeguards included in the study design for protection of human subjects should be mentioned.

Publication Ethics

Authors should consider all ethical issues relevant to publication. This includes (but not restricted to) avoiding multiple submission, plagiarism and manipulation of figures/data. Any concerns in this regard must be brought to the attention of the Editor and these will be investigated by procedures recommended by the Committee on Publication Ethics (COPE). If conclusive evidence of misconduct is found, the *JGCR* undertakes to publish a correction or retraction of article as necessary.

Clinical trial registration

All clinical trials must be registered in a public trials registry. This is a requirement for publications of the trials.

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The *JGCR* welcomes submissions of reports of qualitative research relevant to the scope of the care of elderly.

Article submission

Manuscripts for publication are submitted via email <jgcr.gericare@gmail.com>.

The *JGCR* is not responsible for statements made by authors. Material in the *JGCR* does not necessarily reflect the views of the Editors or of GeriCaRe.

Type of manuscripts

Research article

The research article should normally be between 3000 and 4000 words in length (excluding references, tables and figure legends). Only the essential references should be given, preferably not more than 25 beyond those describing statistical procedures, psychometric instruments and diagnostic guidelines used in the study. Authors are encouraged to present key data within smaller tables in the appropriate places in the running text. This applies also to review articles and short reports.

A structured abstract not normally exceeding 150 words should be given at the beginning of the article, incorporating the following headings: **Background, Aims, Method, Results, and Conclusions**.

Key words: Up to six key words should be provided. Please use Medical Subject Headings (MeSH) as key words.

Article should have **Introduction, Method, Results and Discussion** sections. Authors may use relevant subheadings under these sections. Introductions should normally be no more than one paragraph; longer ones may be allowed for new and unusual subjects. The Discussion should always include limitations of the paper to ensure balance. A paragraph of practical implications of the observations is encouraged.

Short report

Short reports (brief communications) are based on original research, observational or evaluation studies, clinical audits etc. These are structured as research

articles and require an unstructured abstract of one paragraph, not exceeding 100 words; and key words. The report should not exceed 1500 words (excluding references, tables and figure legends) and contain no more than one figure or table and up to 10 essential references beyond those describing statistical procedures, psychometric instruments and diagnostic guidelines used in the study.

Case report

Case reports and series require up to unstructured 100 word abstract, and the length should not exceed 1000 words (excluding references, tables and figure legends). The written informed consent of the individuals must be obtained and submitted with the manuscript. Please refer to patient consent and confidentiality paragraph for further detail. In general, case studies are published in the *JGCR* only if the authors can present evidence that the case report is of fundamental significance and it is unlikely that the scientific value of the communication could be achieved using any other methodology.

Review

Systematic and narrative review articles should be structured in the same way as research article, but the length of these may vary considerably, as will the number of references. It requires a structured abstract like that of research articles.

Short review

These articles focus on highly topical issues based on evidence. Professional perspectives, viewpoints, commentary and opinion are included here. It can also include clinical review relevant to the practitioners. These articles are usually more broad-based than editorials. They can include tables and figures. Usual length is around 1500 words (excluding references) with an unstructured abstract up to 100 words.

Editorial

Editorials require an unstructured summary of one paragraph, not exceeding 50 words. Editorials should not exceed 1000 words and may contain no more than one figure or table and up to 10 essential references.

Letters to the Editor

Letters may be submitted either as responses to published articles, to inform about particular situation or raise pertinent issues, as expert opinion or as general letters to the Editor. Letters may be up to 400 words in length with a maximum of 5 references.

Insight

These articles include variety of topics which may reflect an individual perception, involvement or contribution to geriatric care. It can include good practice examples, inspirational experiences and highlight neglected areas. Essays in descriptive prose can be submitted on any topic related to geriatric care. These are usually written by a single author but a second author may be included occasionally. The length of the articles may vary considerably depending upon the topic and may be up to 2000 words excluding references. An unstructured summary of around 100 words is preferred but not mandatory. Use of subheadings is encouraged.

First person account

In first person accounts *JGCR* publishes experiences of older persons or their care providers about the care and concerns of the elderly, that can be considered significant and provide learning points for others.

Columns

These comprise a range of materials considered to be of interest to readers of the *JGCR*. This section includes reviews on book, film or web resources as short articles up to 400 words. Some other examples include News regarding developments that can influence the care of elderly, poems, paintings, photographs, quotations, information about important internet links, etc. These articles are published individually or as fillers at the end of other articles where space allows.

Preparation of Manuscripts

Prepare article in Word, A4 size page, with 1 inch margin, double spaced throughout.

Article information page

1. Type of manuscript:
2. Title of the article: Brief and relevant
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9. Number of tables: (total number of tables and figures should not be more than 10, preferably less than 5.)
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Authors are responsible for checking all references for accuracy and relevance in advance of submission. All references should be given in superscripted number in the order they appear in the text. Place superscript reference number after commas and full stops, unless the superscript is attached to authors name or title of book/database. At the end of the article the full list of references should follow the ICMJE style. If there are more than six authors, the first six should be named, followed by 'et al'.

Example of journal articles:

The authors' names are followed by the full title of the article; the journal title abbreviated according to the PubMed; the year of publication; the volume number; (issue number in bracket); and the first and last page numbers:

1. Singh SP, Singh V, Kar N, Chan K. Efficacy of antidepressants in treating the negative symptoms of chronic schizophrenia: meta-analysis. Br J Psychiatry. 2010; 197(3): 174-9.

References to books should give the names of any editors, place of publication, editor, and year. Examples are shown below.

2. Murray PR, Rosenthal KS, Kobayashi GS, Pfaller MA. Medical microbiology. 4th ed. St. Louis: Mosby; 2002.

3. Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. In: Vogelstein B, Kinzler KW, editors. The genetic basis of human cancer. New York: McGraw-Hill; 2002. p. 93-113.

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Tables should be numbered and have an appropriate heading. The tables should be mentioned in the text such as Table 1 and the desired position in the manuscript should be indicated. Information in tables must not be duplicated in the text. The heading of the table, together with any footnotes or comments, should be self-explanatory. The table should be placed at the end of the manuscript after references, each in a separate page. Authors must obtain written permission from the original publisher if they intend to use tables from other sources, and due acknowledgement should be made in a footnote to the table.

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Figures must be of high quality and provided in JPEG files separately. They should be clearly numbered and include an explanatory legend. Legends can be provided at the end of the article after the references. All figures should be mentioned in the text (such as Fig 1) and the desired position of the figure in the manuscript should be indicated. Authors must obtain written permission from the original publisher if they intend to use figures from other sources, and due acknowledgement should be made in the legend.

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Abbreviations, units and footnotes

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The generic names of drugs should be used.

Generally, SI units should be used; where they are not, the SI equivalent should be included in parentheses.

Footnotes are not allowed, except table footnotes.

Statistics

Methods of statistical analysis should be described in language that is comprehensible to most readers. Raw data for the studies may be asked at any time up to 5 years after publication of research in the *JGCR* and the authors are suggested to keep these safe.

Proofs

A proof will be sent to the corresponding author of an article which should be sent back within 7 days.

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GeriCaRe (Geriatric Care and Research Organisation) is involved in the care of the elderly and research in various aspects relevant to old age with an overarching aim of improving the quality of life of older adults. It endeavours to provide evidence based information for caregivers, elderly and the health care professionals about age related issues and to support life-long-learning through educational programmes for professionals and carers..

For its activities, GeriCaRe has received the Vayoshreshtha Samman, an Indian National Award in 2016 as the 'Best Institution for Research in the Field of Ageing' by the President of India.

Sharing knowledgebase and making the research evidence utilisable in the community is a key focus of GeriCaRe. It conducts and supports various research and development projects in various disciplines including health, psychology, sociology and other allied fields.

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Geriatric Care and Research Organisation (GeriCaRe)

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