ISSN 2397-5628

GERIATRIC OF A N D R E S E A R C H



2022, Volume 9, No 2

ISSN 2397-5628 Journal of Geriatric Care and Research

- Description The Journal of Geriatric Care and Research (ISSN 2397-5628) is a multidisciplinary, peer-reviewed, international journal covering all areas related to the care of the elderly. It is affiliated to Geriatric Care and Research Organisation (GeriCaRe). It publishes articles from all fields relevant to old age such as geriatric medicine, psychiatry, neurology, nursing, end of life care, public health and related fields like gerontology, sociology, psychology, culture and law. Besides the professionals, the journal intends to reach older persons and their caregivers as its readers. The key feature of the articles is their contribution towards the care of elderly through reporting, discussing and debating current issues of importance.
- Aim and The Journal of Geriatric Care and Research intends to share evidence based knowledge improving care of the older persons. It is dedicated to showcase recent advances in various fields from basic sciences to medicine and social sciences to cultural and legal issues in the field of geriatric care. It takes a holistic view highlighting interrelationship of various disciplines contributing to general wellbeing and quality of life of the older persons throughout the world.
- Submission The Journal of Geriatric Care and Research covers a whole range of topics through authoritative articles submitted from across the globe. Manuscripts for publication should be prepared according to the 'Instruction to authors' and submitted by email at jgcr.gericare@gmail.com. All papers in this journal are peer-reviewed. No person is permitted to take any role in the peer-review process of a paper in which they have an interest.
- Subscriptions The journal is freely distributed. Individuals and organizations interested to receive the journal should contact jgcr.gericare@gmail.com for e-subscriptions.
- Sponsorship The Journal of Geriatric Care and Research is free to readers and authors. It reaches out to older persons, their caregivers and multidisciplinary professionals involved in care and support of older persons. The journal depends upon sponsorship rather than charging authors or readers to meet its cost of operations. There are many sponsorship options and we invite you to consider sponsoring this charitable venture.

Sponsors and contributors names will be displayed prominently in the 'Sponsors & Contributors' section of the Journal.

The journal adheres to a strict policy of keeping all editorial process of the journal independent of the financial sponsors and contributors. The sponsors and contributors do not influence material published in the journal. Assignment of any internal roles (such as reviewer, editor, etc.) depends exclusively on demonstrated competence, along with interest in the journal's aims and scholarly engagement with the journal.

Advertising Correspondence should be addressed to GeriCaRe through email at org.gericare@gmail.com. Journal does not endorse any advertised material and it reserves the right to accept or reject the advertisement proposals.

GERIATRIC AND RESEARCH

ISSN 2397-5628 Journal of Geriatric Care and Research 2022, Vol 9, No 2

Editor-in-Chief

Nilamadhab Kar, Black Country Healthcare NHS Foundation Trust, Wolverhampton, UK

Editorial Board

Shabbir Amanullah, The University of Western Ontario, London, Canada Ankur Barua, School of Medicine, International Medical University, Kuala Lampur, Malaysia Srikala Bharath, National Institute of Mental Health and Neurosciences, Bangalore, India Sarmishtha Bhattacharyya, Betsi Cadwaladr University Health Board, Wales Michael Clark, London School of Economics and Political Science, London, UK David Jolley, University of Manchester, Manchester, UK Zubair Kabir, University College Cork, Ireland Paul Kingston, University of Chester, Chester, UK Maju Mathew Koola, Stony Brook University, Stony Brook, NY, USA KB Kumar, Amity University, Noida, India Yohko Maki, National Center for Geriatrics and Gerontology, Obu, Japan Bana Bihari Mishra, Kalinga Institute of Medical Sciences, Bhubaneswar, India Umasankar Mohanty, Manual Therapy Foundation of India, Mangalore, India N. Sreekumaran Nair, Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry, India Nikhil Palekar, Stony Brook University, USA Tarik Qassem, University of Warwick, Warwickshire, UK Raghavakurup Radhakrishnan, Northland District Health Board, Whangarei, New Zealand Shovan Saha, Manipal University, Manipal, India Ravi Samuel, The Psychotherapy Clinic, Chennai, India Sujata Sethi, Post Graduate Institute of Medical Sciences, Rohtak, India Lochana Shrestha, Nepalese Army Institute of Health Sciences, Kathmandu, Nepal Surendra P Singh, University of Wolverhampton, UK P T Sivakumar, National Institute of Mental Health and Neurosciences, Bangalore, India Sarvada C. Tiwari, King George's Medical University, Lucknow, India Thagadur Chickabasaviah Yasha, National Institute of Mental Health and Neurosciences, Bangalore, India

Editorial advisors

Murali Reddy, Australian National University, Canberra, Australia Sudeshna Chakraborty, Geriatrics Community Healthcare, Toronto, Canada Ramalingam Chithiramohan, Birmingham and Solihull Mental Health Trust, Birmingham, UK Anand Ramakrishnan, Hertfordshire Partnership University NHS Foundation Trust, UK Martin Yates, Leighton Hospital, Crewe, UK

Publisher

Geriatric Care and Research Organisation (GeriCaRe) **Sponsors** The Institute of Insight, UK Quality of Life Research and Development Foundation (QoLReF) **Creative Support** GenX Studios, Shreyan Kar, Gabrielle Johnson **Correspondence** Steps to Health, Showell Circus, Wolverhampton, WV10 9TH, UK jgcr.gericare@gmail.com

Copyright of all published material in this journal is held by the authors unless specifically stated otherwise. The views and opinions expressed by the authors are their own. They do not necessarily reflect the views of their employers, the journal, the editorial board or GeriCaRe. The publisher and editors are not responsible for any error of omission or fact. Permission is required for commercial use of the articles. For permissions please apply to GeriCaRe through email org.gericare@gmail.com.

Journal of Geriatric Care and Research

NLM Title Abbreviation:	J Geriatr Care Res
ISO Abbreviation:	J Geriatr Care Res
Title(s):	Journal of geriatric care and research.
Other Title(s):	JGCR
Publication Start Year:	2014
Country of Publication:	England
Publisher:	Geriatric Care and Research Organisation (GeriCaRe)
Language:	English
ISSN:	2397-5628 (Electronic)
	2397-5628 (Linking)
Electronic Links:	https://independent.academia.edu/jgcr
	https://instituteofinsight.org/journals/jgcr/all-issues/
NLM ID:	101736616 [Serial]
OCoLC	1013748579
Indexing and archiving	PubMed: Selected citations only [Citations are for articles where the
	manuscript is deposited in PubMed Central (PMC) in compliance with public
	access policies.]
	Index Copernicus
	CiteFactor
	JournalGuide
	Scope database
	Google Scholar
	British Library, UK
	The Library of Congress, USA

GERIATRIC AND RESEARCH

ISSN 2397-5628 Journal of Geriatric Care and Research 2022, Vol 9, No 2

Contents

- **31** Scope of social rhythm therapy for older adults with mental health problems *N Kar*
- **34 Cost analysis of technology-based model used in geriatric care in India** *S Sivananjaiah, M Y Rao, I Savanur, N K Bidare Sastry*
- 40 Clinical profile and comorbidity of elderly patients presenting to a psychiatric outpatient unit of a tertiary care hospital in Odisha, India: a cross sectional study *D Mahanta, N G Mohanty, S Kar, S Mohapatra, N Kar*
- **47** Role of community health workers as trans-disciplinary models for decreasing the impact of dementia on care partners of persons suffering from dementia: a scoping review *S K Thrivikraman, G Dev*
- 57 Heart Y Nath
- 58 Beauty of Barra S Das
- 59 Exploring the concerns of older adults and their support needs: reflections from the Healthy Ageing 2022 International Conference *N Rath*
 - I Instructions for authors
- Cover House in Market Boswell



Copyright © Gaye Johnson, United Kingdom



The Institute of Insight is a non-profit organisation with an objective to advance education, promote health and creativity to improve quality of life by providing opportunities for lifelong learning, training, appropriate services, research, and publications for the benefit of general public and professionals worldwide.

The Institute is working in partnership with Quality of Life Research and Development Foundation (QoLReF) and Geriatric Care and Research organisation (GeriCaRe) which are academic and charitable organisations supported by resource persons worldwide.

The Institute of Insight is currently supporting various public education initiatives, research related works and publications. It is contributing to the Healthy Ageing Conference a public education event in India, for elderly people and their caregivers. It sponsors publication of Journal of Geriatric Care and Research, which is freely available to general public and professionals.



Editorial

Scope of social rhythm therapy for older adults with mental health problems

Nilamadhab Kar

Abstract

Disruption of habitual daily activities is associated with mental health issues. Social rhythm therapy encourages greater regularity of daily activities. Interventions to restabilise the activities have been reported to be helpful. Social rhythm therapy has been used in bipolar disorder, depression, stress related disorder including posttraumatic stress disorders, insomnia, etc. Older adults with depression and emotional disturbance following bereavement may benefit from this therapy. More studies are needed about its usefulness in elderly with various mental health issues.

Key words

Anxiety, Circadian Rhythm, Depression, Old Age, Psychological Stress, Social Rhythm

Introduction

Social rhythms refer to the variability of daily, habitual behaviours. These daily behaviours and many biological variables (e.g. body temperature, melatonin) are dependent on the circadian system. The circadian system is influenced by many environmental cues or "time givers" (Zeitgeber in German). While daylight is one of the most influential factors for the social rhythm, there are other time givers such as meals, physical activity, social encounters, etc. Disruptions to these can lead to instability in biological rhythms such as sleep in vulnerable individuals. These irregularities are linked to mental health problems especially mood disorders.

Social rhythm hypothesis of depression links the role of stressful life events to disrupting sleep and circadian rhythms.¹ In depression, the response to social stimuli is blunted; and this has been found in older adults as well.² Interventions that might re-stabilise social rhythm may help the mental health problems originating from its disturbance.

It is well observed that stressful life events from minor day to day stress to major catastrophic events disrupt the daily routine of the affected individuals,³ such as sleep, waking up to work, exercise, social communications and interactions etc. Recently, COVID related lockdowns necessitating people to stay indoors have impacted the timing of daily behaviours, which has been found to correlate with levels of depression.⁴ The disruption of circadian rhythm is also noticed in night shift workers, those travelling across different time zones (leading to jet lag); and self-induced lifestyle irregularities. The most notable changes associated with the disruption are that of core body temperature, cortisol, melatonin, and sleep wake cycle.

These circadian rhythm disturbances are associated with physical health problems, depression, anxiety, sleep disorders and psychological stress.⁵ It is reported that greater regularity in the social rhythm is related to better overall health, life satisfaction and positive mental health.⁵

Monitoring the social rhythm

The social rhythms or daily activities can be measured. The activities which are usually considered are waking up time from sleep, first contact with a person, breakfast, first time going out, start of work/school, lunch, dinner, physical exercise, evening snack, return home, get into bed; however other activities such as watching or reading the news, watching television, using phone for the first time in the day; using computer for the first time in the day can also be considered in the list of activities.⁶ These activities can be monitored by a daily diary. During a specific intervention, the number of these activities to be monitored can be flexibly decided.

There are some validated structured instruments to measure social rhythms. The Social Rhythm Metric (SRM) is designed to quantify an individual's daily social rhythms.⁷ There is an interview scale to assess biological rhythms in the clinical setting which is known as Biological Rhythms Interview of Assessment in Neuropsychiatry (BRIAN).⁸ These scales can be used to evaluate the effectiveness of interventions directed at correcting rhythm irregularities and symptomatic outcomes.

Social rhythm therapy

Social rhythm therapy (SRT) support the implementation of regular, daily patterns of activity to facilitate the recovery of circadian biological processes and also to improve mood.¹ Considering the hypothesis of the social rhythm instability linked to depression and other mental health problems, SRT suggests stabilizing the daily routine as a therapeutic intervention. SRT tries to promote regularity of the daily routine starting from wake up time to bedtime to make it more structured and consistent. It suggests a return to the normal routine as soon as possible from the disturbed phase. In this process SRT utilises activity scheduling and behavioural activation to an extent.

SRT does not deal with the psychological nature and meaning of traumatic life events; which are dealt with by different psychotherapies. It only concentrates on the stabilisation of biorhythm. SRT is mostly used along with other psychotherapeutic interventions. There are various modifications of SRT such as interpersonal and social rhythm therapy (IPSRT) and cognitive behavioural social rhythm therapy (CBSRT), which are commonly used. As the name suggests IPSRT focuses on stabilizing daily rhythms and improving interpersonal problems.⁹ CBSRT uses cognitive behavioural interventions along with SRT.

SRT requires patients to develop, monitor a daily routine and maintain a daily diary. This has been called the social rhythm metric (SRM). Although many activities are mapped, activities that account for most variations are waking up, first contact with another person (phone or in person), starting work (job related work, studies, home work, care), dinner and going to bed. The sooner the person returns to their usual daily routine the better.

It appears that SRT can be easily adapted into routine clinical practice. It can be given in different formats, individually one to one, in group therapies, computer or app-based therapeutic interventions and as an online therapy. There are suggestions for developing a self-management intervention to build circadian resilience on a digital platform.⁴

Indications

The evidence base for SRT in mental health problems is growing. Initially SRT was developed for patients with bipolar disorder; however indications for SRT have expanded. There are reports of its usefulness in bipolar disorder, with many studies on bipolar depression,¹⁰ depression, posttraumatic stress disorder (PTSD) and sleep problems.^{1,11} When mental health problems are secondary to the disruption of daily routines, SRT could be an option. Based on the therapeutic mechanism it appears that SRT can also be used in other stress related psychiatric disorders that disrupt biological rhythms.

Studies in older adult

It is common to observe older adults spending most of their time indoors limiting their exposure to light and social interactions; which may impact on the regularity of their daily schedule of activities. Besides, considerable proportions of older adults have depression.^{12,13} Stressful life events, especially bereavements are common in old age which lead to emotional strain, and on many instances complicated grief, depression and other stress related psychiatric disorders. All of these factors may lead to a particular vulnerability of instability of their social

rhythms. In these circumstances, it can be reflected that SRT may be appropriate for affected older adults. Modified SRTs such as function-based therapy (FT) have been tried for emotional problems in older adults with spousal bereavement. FT focused on daily lifestyle regularity improved both functional and emotional domains of older adults.¹⁴

Conclusion

It is feasible to use SRT during routine clinical practice in clinics for older adults. It can be easily combined with other forms of therapy and be useful in several psychiatric conditions. It may be specifically relevant for depression, bereavement related emotional problems and insomnia in older adults. In general, it may benefit those who have biological rhythm disturbances associated with life events or mental health problems. There is a need for more research in this area to study the effectiveness of SRT in wider psychiatric presentations observed in older adults.

Acknowledgement

Author wish to thank The Institute of Insight, UK, Quality of Life Research and Development Foundation (QOLREF) and Geriatric Care and Research Organisation (GeriCaRe), India for the support in preparting this article.

Author information: Nilamadhab Kar, MD, DPM, DNB, MRCPsych, Consultant Psychiatrist, Black Country Healthcare NHS Foundation Trust; Honorary Professor, Sri Sri University; Honorary Professor of Psychiatry, University of Wolverhampton, UK, Email: n.kar@nhs.net

Correspondence: Nilamadhab Kar, Steps to Health, Showell Circus, Wolverhampton, WV10 9TH, UK. Email: <u>n.kar@nhs.net</u>

Competing interests: None

Received: 16 September 2022; Revised: 19 September 2022; Accepted: 19 September 2022

Copyright © 2022 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Kar N. Scope of social rhythm therapy for older adults with mental health problems. Journal of Geriatric Care and Research, 2022, 9, 2: 31-33.

References

- Haynes PL, Gengler D, Kelly M. Social Rhythm Therapies for Mood Disorders: an Update. Curr Psychiatry Rep. 2016;18:75.
- Lieverse R, de Vries R, Hoogendoorn AW, Smit JH, Hoogendijk WJG. Social support and social rhythm regularity in elderly patients with major depressive disorder. Am J Geriatr Psychiatry. 2013 Nov;21(11):1144– 53.
- Kar N. Psychosocial issues following a natural disaster in a developing country: a qualitative longitudinal observational study. International Journal of Disaster Medicine. 2006;4:169–76.
- 4. Murray G, Gottlieb J, Swartz HA. Maintaining Daily Routines

to Stabilize Mood: Theory, Data, and Potential Intervention for Circadian Consequences of COVID-19. Can J Psychiatry. 2021 Jan;66(1):9–13.

- Margraf J, Lavallee K, Zhang X, Schneider S. Social Rhythm and Mental Health: A Cross-Cultural Comparison. PLoS One. 2016;11(3):e0150312.
- Moss Atlin T, Carney C, Haynes P, Harris A. Is daily routine important for sleep? An Investigation of social rhythms in a clinical insomnia population. Chronobiology international. 2014 Sep 4;32:1–11.
- Monk TH, Flaherty JF, Frank E, Hoskinson K, Kupfer DJ. The Social Rhythm Metric. An instrument to quantify the daily rhythms of life. J Nerv Ment Dis. 1990 Feb;178(2):120–6.
- Giglio LMF, Magalhães PV da S, Andreazza AC, Walz JC, Jakobson L, Rucci P, et al. Development and use of a biological rhythm interview. J Affect Disord. 2009 Nov;118(1–3):161–5.
- Reilly-Harrington NA, Roberts S, Sylvia LG. Family-Focused Therapy, Interpersonal and Social Rhythm Therapy, and Dialectical Behavioral Therapy. In: Yildiz A, Ruiz P, Nemeroff C, editors. The Bipolar Book: History, Neurobiology, and Treatment [Internet]. Oxford University Press; 2015 [cited

2022 Sep 17]. Available from: https://doi.org/10.1093/ med/9780199300532.003.0032

- Hoberg AA, Ponto J, Nelson PJ, Frye MA. Group interpersonal and social rhythm therapy for bipolar depression. Perspect Psychiatr Care. 2013 Oct;49(4):226– 34.
- 11. Haynes PL, Burger SB, Kelly M, Emert S, Perkins S, Shea MT. Cognitive behavioral social rhythm group therapy versus present centered group therapy for veterans with posttraumatic stress disorder and major depressive disorder: A randomized controlled pilot trial. J Affect Disord. 2020 Dec 1;277:800–9.
- 12. Barua A, Kar N. Screening for depression in elderly Indian population. Indian J Psychiatry. 2010 Apr;52(2):150–3.
- Barua A, Ghosh MK, Kar N, Basilio MA. Prevalence of depressive disorders in the elderly. Ann Saudi Med. 2011 Dec;31(6):620–4.
- Pfoff MK, Zarotney JR, Monk TH. Can a function-based therapy for spousally bereaved seniors accrue benefits in both functional and emotional domains? Death Stud. 2014 Dec;38(6–10):381–6.

Research

Cost analysis of technology-based model used in geriatric care in India

Shalini Sivananjaiah, Medha Yogish Rao, Irfanahemad Savanur, Nanda Kumar Bidare Sastry

Abstract

Background: telemedicine-based The approach facilitates remote health, improving the quality of life for geriatric patients with associated morbidities. Aims: The present study aimed to analyse the cost involved in developing and functioning a telemedicine-assisted model to facilitate geriatric care in rural and urban Indian populations. Method: The HUB and spoke model has been developed using cloud-based teleconsulting and mobile-based teleconsulting approaches in rural and urban areas in India and Sweden for teleconsulting elderly population. This operational research-based study collected data on costs in implementing telemedicine for 2531 elderly individuals. Results: Majority of persons screened were in the age group of 60-69 years. Detailed cost analysis elaborated upon different categories like recurring expenses, non-recurring expenses, contingencies, travel, and human resources utilized in the set-up. The cost for setting up of a hub and spokes model in urban and rural areas required an initial onetime investment of 45831.82 USD; and the cost per person was 19.31 USD per month for consumables and medications. Conclusions: This teleconsultation based model was found to be economically feasible that can be used in treating the elderly population in Bangalore, Karnataka state, which may improve affordability of the care.

Key words

Cost Analysis, Geriatrics, Hospitalization, Morbidity, Telemedicine

Introduction

The emergency department (ED) visit rate for the elderly is the highest compared to other age groups. In the United States, there are 64 emergency room visits for every 100 people of the elderly each year, almost twice that of younger patients.¹ Of the entire Indian population, the number of senior citizens has increased from 5.4% in 1950 to 9% in 2020.² In the Indian population, a tremendous rise has been evident in the proportion of the elderly population from 1991 to 2001. It has also been estimated that the elderly population in India will reach 324 million by the year 2050.^{3,4} Population aging is the most significant result of demographic transition. Projection studies indicate that the proportion of individuals above 60 in India will increase to 100 million in 2013 and 198 million in 2030. India is in a phase of demographic transition, and trends reveal that the population of the elderly is growing faster than the general population.⁵

Challenges affecting ED care in this patient population include multiple morbidities, atypical symptoms or disease conditions, multiple drug treatments, and adverse drug reactions, as well as intentional or unintentional wrong use of prescription and over-the-counter drugs.^{6,7} In addition, older people may have dysfunction, cognitive impairment as well as communication issues. These challenges can have a negative impact on the treatment they receive during hospitalization, transfer to home or other environments, health outcomes, and utilization patterns of in-hospital patient care after discharge.⁸

There is a lack of geriatric medical experts worldwide, which causes an inadequate supply of practitioners or remoteness. In rural or remote areas, there may be insufficient caseload to justify the full-time presence of a geriatrician. As a result, this important resource is usually unavailable, especially in rural areas. There is an immense need of medical attention, especially in rural areas as a result of higher proportion of unhealthy behaviours, accessibility issues to tertiary healthcare centres, transportation problems leading to delay in medical aid, lack of proper nutrition as well as hygiene practices. This has been further highlighted with studies focussing on the healthcare of elderly population in rural and urban India, where a higher proportion of rural inhabitants (9.5%) as compared to urban inhabitants (4.2%) show lack of availability daily medical requirements.9

Telemedicine can be said to be a contemporary way of providing medical services and is used when the doctor and the patient are not present at the same location.^{10,11} The use of latest information along with communication technology aids telemedicine to combine the patients' requirements as well as technological advance by overcoming the traditional boundaries present in the healthcare system.^{12,13} With the aging of the population and the increasing prevalence of long-term illnesses, use of remote care is increasing for helping the elderly in maintenance of their independence for continuing to live in their own homes.¹⁴ This is partially due to the advancement of technology has made the same cheaper and easier to use, as well as the cost of healthcare and increased patient expectations.

Although telemedicine interventions began a few years ago and have grown well so far, detailed economic evaluations of such projects remain insufficient.¹⁵ Previous research has concluded that telemedicine is effective and has a positive impact. These include treatment effects, greater efficiency of health services, and practical usability. Other identified benefits include greater access to health services, cost-effectiveness, better educational opportunities, better health outcomes, better quality of care, better quality of life, and greater social support.¹⁶ Furthermore, previous research has shown that there is a lack of knowledge and understanding of the costs and profitability of telemedicine.¹⁷

In India, majority (80%) of the elderly population live in the rural areas. The proportion of females is higher than males, which became 51% of the elderly population around the year 2016.¹⁸ Geriatric care in India has been a challenging task. According to the Government of India statistics, cardiovascular disorders account for one third of elderly mortality. The proportion of the sick and the bedridden among the elderly is found to be increasing with advancing age. Therefore, policy interventions that include social, human, as well as economic investments are the need of the hour to prevent unnecessary dependencies in late life for individuals and ageing societies.

In India, various schemes have been developed to address promotional, preventive, curative and rehabilitative services in an integrated manner which includes the National Programme for Health Care of the Elderly (NPHCE). These programmes focus upon health preventive promotion, services, diagnosis and management of geriatric medical problems (out and inpatient), day care services, rehabilitative services and home-based care as needed.¹⁹ They have also encouraged use of technology-based approaches in efficient management of geriatric care. With these issues in mind, the purpose of this study was to evaluate the costeffectiveness of the technology-based geriatric care in rural as well as urban settings. Specifically, the study analysed the cost involved in development and functioning of telemedicine-assisted model to facilitate geriatric care in rural and urban Bangalore, in Karnataka State.

Methods

This operational research-based study was conducted on 2531 elderly individuals from rural and urban settings during the period from September 2017 to September 2019 of a rural and urban field practice area of a medical college in Bangalore.

The institution provides geriatric outpatient and inpatient services for the geriatric population. Department of Community Medicine, Ramaiah Medical College caters to urban field areas of BK Nagar, MK Nagar, and Malleshwaram, Bangalore North through the outreach centers. Sri Sai Mandali Trust located in Malleshwaram, Bangalore North, is a private Non-Governmental Organization (NGO) providing primary health care facilities through the outpatient clinic in association with Ramaiah Medical College. The Urban Telemedicine Satellite Center functioned at the Sai Mandali clinic.

The Kaiwara Primary Health Center, Chikkaballapura district, Karnataka, caters to 23 villages of Chintamani Taluk with a population of 375,000. Rural training of postgraduates and interns of Ramaiah Medical College is undertaken at the Primary Healthcare Centre (PHC), Kaiwara. The Rural Telemedicine Satellite Clinic was located in the PHC Kaiwara.

Telemedicine services are designed on hub and spoke model using information and communication technology. In the present study, hub and spoke (satellite) model was adapted in both rural and urban areas. In this context, it is the geriatric outpatient department (OPD) of the Medical College Hospital served as hub where expert consultation was given. The rural and urban outpatient served as spokes (satellites) for primary care. If referral was needed teleconsultation was connected to hub. The model was developed using cloud-based teleconsulting as well as mobile-based teleconsulting approaches. The field staff recruited were trained for a month in the hub on the processes involved. They assisted in the teleconnectivity and point of care diagnostics and instructed the elderly on the prescription and follow up dates. If the elderly failed to come to the OPD, reminders were given to them by phone. In the latter part of the project, mobile-based technology was developed to increasing accessibility.

Local health functionaries such as anganawadi workers (AWW), auxiliary nurse mid wife (ANM), accredited social health activist (ASHA) workers, medical doctors, family physicians in urban and rural areas were sensitized through workshops and training programs to identify, refer and provide supportive guidance to elderly and their care givers for seeking help at the satellite centres. In case of medical treatment at higher centres, the patients were referred to the hub hospital for specialized care of the morbidity as per the institutional guidelines at geriatric ward. The technology-based model for geriatric care was conceptualized, tested and validated in rural as well as urban settings.

The elderly with morbidities who came to the hub, satellite centres of urban and rural centre were recruited for the study. Later elderly in old age homes under the rural and urban field practice area were also recruited for the study. The elderly utilised the centres for either detection of morbidities, treatment, follow up, side effects of treatment (if any) or if new symptoms have developed. Some of the patients had also come for free medicines available in the NGO run urban satellite centre or PHC in the rural satellite centre.

The data was collected in the various proforma namely: clinical assessment, memory consultation questionnaire, geriatric care fall assessment questionnaire and symptomatology. These were thoroughly checked for completeness and accuracy. Further, all the data were entered in an Excel sheet. Thorough, appropriate quality control measures were undertaken for all the various lab tests to validate the accuracy of the measurements. The dry chemistry by remedy kit was initially validated in the hospital lab and later cross verified with capillary and venous blood in the PHC, hospital lab or private lab, whenever there were very low or very high values linked with clinical suspicion. In addition, the test strips provided for the necessary tests were matched for that lot batch. The data of investigation results relating to diabetes, hypertension and lipid profiles, ECG, Spo2, and HbA1c were all collated in the software based on the unique ID given to the elderly. Appropriate quality control measures in terms of checking of the range, duplicates, missing values were carried out.

The entire costing was broadly divided into different components like recurring expenses, non-recurring expenses, contingencies, travel, and human resources. The monthly cost of generic drugs used at satellite centres was averaged for 100 patients. The per unit cost of lab supplies used in different assessments was also considered which was then compared to conventional testing costs.

Sample size calculation

Studies carried out in the country on the prevalence of chronic morbidity among elderly have reported varied rates ranging as low as 32% and as high as 92%. So, an average of 60% was considered for estimating the sample

size. With an absolute precision of 2.5% and desired confidence level of 95%, the estimated sample size was 1475 persons.

Ethical considerations

The study objectives and process were explained to the elderly including the limitations of the teleservices. Their capacity to understand was checked by requesting them to explain the content of the discussion. Following this their consent to participate in the study was taken. The identity of the elderly was masked by the codes. They were informed about any alarming signs, which need to be watched for and they were advised to seek help at the nearest hospital for any emergencies. Field staff checked the medicines and ensured that elderly understood the instruction by asking them to repeat the instructions given.

Results

The present study has been conducted on a total of 2531 elderly individuals. About 701 (27.7%) individuals belonged to the urban population and 1830 (72.3%) individuals belonged to the rural population who were examined with the help of model developed using telemedicine technology. First, hub and spoke model was used. It was seen that the elderly population was not using the same. Hence, mobile-based technology was developed to increase patient accessibility.

Table 1: Costing matrix	x for telemedicine services for geriatrics		
Details	HUB	Satellite	Costing (USD)
Physical	20 square metres room with	15 square metres room with	Not applicable
Infrastructure	medical equipment	basic medical equipment	
Human Resources	Senior Consultant	Junior Resident	11423.28
	Junior Resident	Nursing Assistant	
	Nursing Assistant	Community Nurse Assistant	
Telemedicine system	Remidi-Neurosynaptic telemedicine kit	55 inches A grade	29387.93
Equipment	hardware	display monitor	
Display	Two units for	Laptop, Desktop, Printer	
AV conferencing	a. One for general consultation and	Video conferencing system	
	b. One Specialty consultation	(Camera, noise cancellation	
	65 inches A grade display monitor	microphones, Hi-Fidelity	
	Laptop, Desktop, Printer	speaker system)	
	video conferencing system (Camera,		
	Eidelity speeker system)		
Softwara Tala	Plaenty speaker system) Pomidi Softwara licenses Annual for	Not applicable	2830.82
software	one consultant and	Not applicable	2650.62
sontware	two remote contros		
Consumpbles Test Kits	Not applicable	Not applicable	1134 57
Health Education	Not applicable	Not applicable	1055 22
materials	Not applicable	Not applicable	1055.22
Questionnaires			
consent forms			
feedback forms			
Total			45831.82
			10001104

Table 2: Generic drugs at the sa(monthly average for 100 patien)	tellite centres ts)
Generic drug Name	Price (USD)
Glimeperide 1 mg	60.48
Aten 50 mg	112.89
Losartan 50 mg	44.35
Metformin 500 mg	60.48
Amlodepine 5 mg	100.79
Glibenclamide 5 mg	50.40
Losartan 50 mg	40.32
Total	469.71
*assumed to be 30 tablets per leaflet a	s per costs derived
from the public drug distribution syste	em

Table 3: Lab consumables (per person	n cost)
Point of care strips used for assessing	Unit rate (USD)
Haemoglobin	0.39
Lipid Profile	3.53
HbA1c	2.86
Hepatitis C	0.42
Hepatitis B	0.29
1&2 Triline	0.42
Malaria	0.44
Troponin	2.00
Dengue	2.71
Blood Sugar	0.15
Urine Sugar	0.09
Pricking	0.013
Mouth Pieces	1.28
Hearing tests	0.019
Total	14.61

Bifurcation of the funds has been done during its utilization in setting up the Hub as well as the spoke units of the model. It is divided into various categories like infrastructure, human resources, telemedicine equipment and related software, consumables, stationaries, etc. However, the bulking costing seen is a one-time investment and can be exploited for a long duration once the model is set up.

Different prices of generic drugs which have been commonly used at the satellite centres for treating the elderly population in rural as well as urban areas have been elaborated in Table 2. It describes the average costing of commonly used generic drugs per 100 patients. It comes around 4.7 USD per month for an individual patient. It can be observed that the cost of these generic drugs is minimal considering the elderly of both urban and rural areas should be comfortable to pay for the same as this would directly influence the acceptability of the model.

Furthermore, lab consumables have been elaborated in Table 3 which consists of different kits used in detection of various parameters influencing the diagnosis of the elderly patients. It has been observed that these tests show significantly reduced prices as compared to the prices charged when tested in conventional test centres or hospitals. Considering both lab consumables and medications, the cost per person was 19.31 USD per month.

Discussion

In the present study of 2531 elderly, the cost for setting up of a hub and spokes model in urban and rural areas needed an initial onetime investment of 45831.82 USD; and the cost per person was 19.31 USD. Compared to a study in Australia,²⁰ the cost in our study was considerably lower. It appeared that the cost of telegeriatric model in India was affordable. This model might be useful especially in rural areas due to its low incurred costs.

The healthcare of elderly individuals is challenging. In old age, individuals commonly experience one or more morbidities. The actual focus of geriatric care remains the management of these morbidities as well as slowing down their progression so as to improve the quality of life for elderly.^{21,22} The longitudinal care of elderly individuals focuses at early diagnosis, limiting progression of morbidities, slow down the deteriorating conditions so as to bring about improvement in patient's comfort levels.²² Incident care involves recurrent interventions as well as long stays at the hospitals incurring huge economic costs. Telemedicine strategies have been undertaken to reduce these challenges by providing services at marginally increased cost while minimising the commutation expenses of physicians and patients.^{23,24}

In India, various schemes have been developed to address promotional, preventive, curative and rehabilitative services in an integrated manner; which include the NPHCE. These programmes focus upon health promotion, preventive services, diagnosis and management of geriatric medical problems (out and inpatient), day care services, rehabilitative services and home-based care as needed. However, such approaches have been highly adapted only in developed countries. Even though there are huge numbers of reports where technology-based models have been used for geriatric care in developed countries, this approach still remains underutilized in case of developing countries which have limited resources.²⁴ Thus, the present study was undertaken to analyse the cost effectiveness of such models in an Indian scenario for both urban as well as rural settings.

In a study of telehealth in Nova Scotia to compare telepsychiatry and teledermatology services in relation to face-to-face consultation, costs ranged from 328 to 1435.6 USD for face-to-face whereas costs for telehealth were lower i.e. from 23.3 to 95.8 USD.²⁵ Technology-based model for geriatric care was seen to enable medical care to elderly populations who needed assistance both in rural as well as urban settings. It appears that the tele-geriatric model was more economical than the cost of actual inhospital care. Use of mobile-based applications even enabled users to undertake tele-consultations from their residence. These interventions demonstrated early detection, treatment, and management of morbidities of the elderly population thereby minimizing the rate of their hospitalization. The present study is first of its kind elaborating upon involved expenses in a cost-effective manner considering Indian scenario.

There were a few challenges. The essential medicine list for supply to PHC is procured from the district drugs store. However, sometimes it is difficult to replenish when stocks are empty. In the present study, the NGO in urban satellite centre supplying free medicines was used to calculate the cost (Table 2). The costing for point of care diagnostics done in the study were calculated based on unit cost price to the elderly. There are many studies comparing point of care costs with those of standard labbased testing,^{26,27} However, there is paucity of data in these aspects in geriatric medicine in different clinical set ups.

Limitations

Being a technology interventional assessment, ensuring follow up of all registered patients was not possible. Clinical effectiveness is not available for the participants. Ensuring availability of drugs required for all participants was a challenge as the supplies were not planned to be provided through the project. Large proportion of patients referred to higher centres did not provide feedback regarding the visit or follow up. Hence, information is limited to only those visiting the hub centres or returning to the satellite after visiting the higher centres which ultimately influenced the overall cost analysis. In addition, a direct comparison of in-hospital care with telegeriatrics model would give a better understanding about finances involved as well as cost-effectiveness of the latter. In spite of all these shortcomings, the current study provides some insights which will be useful, reflecting the economics of setting up and maintaining old age services through tele-geriatric technology models.

Conclusion

Telemedicine-assisted applications for geriatric care may provide a promising alternative for managing the everincreasing elderly population. In this study, detailed cost analysis showed that technology-based model implemented for geriatric care in both rural and urban settings was economically feasible. This tele-geriatric model can be adapted due to comparatively low implementation costs incurred.

Acknowledgment

The authors wish to acknowledge the support of Dr Pia Hedberg, Ph.D. in Nursing, Senior Lecturer at Umea University; Dr Per-Daniel Liljegren, R&D Manager in education, Regionförbundet Västerbottens län, Dr Anette Edin-Liljegren, Senior Lecturer, Adjunct at Department of Nursing, Vårdvetarhuset Hus A; Indian Council of Medical Research, New Delhi and Department of Community Medicine Ramaiah Medical College and Hospitals, Bangalore.

Funding

Indian Council of Medical Research (ICMR) and FORTE, Sweden; Grant No. 54/4/GER/Indo-Sweden/17-NCD-II, Dated: 13/03/2019; awarded to Dr. B S Nandakumar, Associate Professor, Department of Community Medicine and Head of Division of Research and Patents, M S Ramaiah Medical College, Bangalore.

Author information: Shalini Shivananjaiah, MD, Professor, Department of Community Medicine, M S Ramaiah Medical College, Bangalore, 560054, India. Email: drshalini pradeep@yahoo.co.in; Medha Yogish Rao, MD, Professor of Medicine, Academic Dean M S Ramaiah University, Bangalore, 560054, India. Email: drmedharao@msrnc.ac.in; Irfanahemad Savanur MPH (Hons), Consultant, NPSP unit, WHO, Arunachal Pradesh, India. Email: drifanahemadt@gmail.com; Nanda Kumar Bidare Sastry, MD, DNB, Associate Professor, Department of Community Medicine, and Head Division of Research and Patents, M S Ramaiah Medical College, Bangalore, 560054, India. Email: bsnandakumar@gmail.com ORCID:0000-0001-8644-3395

Correspondence: Nanda Kumar Bidare Sastry, Associate Professor, Department of Community Medicine and Head, Division of Research and Patents, M S Ramaiah Medical College, Bangalore, 560054, India; Email: bsnandakumar@gmail.com

Competing interests: None

Received: 6 October 2022; Revised: 2 November 2022; Accepted: 7 November 2022

Copyright © 2022 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Shivananjaiah S, Rao MY, Savanur I, Bidare Sastry NK. Cost analysis of technology-based model used in geriatric care in India. Journal of Geriatric Care and Research, 2022, 9, 2: 34-39.

References

- Qin X, Zahran HS, Malilay J. Asthma-related emergency department (ED) visits and post-ED visit hospital and critical care admissions, National Hospital Ambulatory Medical Care Survey, 2010-2015. J Asthma. 2021 May;58(5):565-572. doi: 10.1080/02770903.2020.1713149.
- Agarwal A, Lubet A, Mitgang E, Mohanty S, Bloom DE. Population aging in India: facts, issues, and options. In: Poot, J., Roskruge, M. (eds) Population Change and Impacts in Asia and the Pacific. New Frontiers in Regional Science: Asian Perspectives, vol 30. Singapore: Springer, 2020.
- 3. Verma R, Khanna P. National program of health-care for the elderly in India: a hope for healthy ageing. Int J Prev Med. 2013 May; 4(10):1103–1107.
- Ingle GK, Nath A. Geriatric Health in India: Concerns and Solutions. Indian J Community Med. 2008 Oct; 33(4):214– 218.
- Bongaarts J. Human population growth and the demographic transition. Philos Trans R Soc Lond B Biol Sci. 2009 Oct; 364(1532): 2985–2990.
- 6. Sinha SK, Bessman ES, Flomenbaum N, Leff B. A systematic review and qualitative analysis to inform the development of a new emergency department-based geriatric case management model. Ann Emerg Med. 2011; 57:672–682.

- Hughes JM, Freiermuth CE, Shepherd-Banigan M, Ragsdale L, Eucker SA, Goldstein K, Hastings SN, Rodriguez RL, Fulton J, Ramos K, Tabriz AA. Emergency department interventions for older adults: a systematic review. J Am Geriatr Soc. 2019 Jul;67(7):1516-1525.
- Kieft RA, de Brouwer BB, Francke AL, Delnoij DM. How nurses and their work environment affect patient experiences of the quality of care: a qualitative study. BMC Health Serv Res. 2014 Dec;14(1): 249.
- Hintenach A, Raphael O, Hung WW. Training programs on geriatrics in rural areas: a review. Curr Geriatr Rep. 2019 Jun; 8(2):117-122.
- 10. Alvandi M. Telemedicine and its role in revolutionizing healthcare delivery. Am J Acc Care. 2017 Mar;5(1):e1-5.
- Kichloo A, Albosta M, Dettloff K, Wani F, El-Amir Z, Singh J, Aljadah M, Chakinala RC, Kanugula AK, Solanki S, Chugh S. Telemedicine, the current COVID-19 pandemic and the future: a narrative review and perspectives moving forward in the USA. Fam Med Community Health. 2020 Aug;8(3):e000530.
- Bhaskar S, Bradley S, Chattu VK, Adisesh A, Nurtazina A, Kyrykbayeva S, Sakhamuri S, Moguilner S, Pandya S, Schroeder S, Banach M. Telemedicine as the new outpatient clinic gone digital: position paper from the pandemic health system REsilience PROGRAM (REPROGRAM) international consortium (Part 2). Front Public Health. 2020 Sep;8:410.
- Bujnowska-Fedak MM, Grata-Borkowska U. Use of telemedicine-based care for the aging and elderly: promises and pitfalls. Smart Homecare Technol TeleHealth. 2015 May; 3:91-105.
- Majumder S, Aghayi E, Noferesti M, Memarzadeh-Tehran H, Mondal T, Pang Z, Deen MJ. Smart homes for elderly healthcare - Recent advances and research challenges. Sensors. 2017 Nov;17(11):2496.F
- Delgoshaei B, Mobinizadeh M, Mojdekar R, Afzal E, Arabloo J, Mohamadi E. Telemedicine: A systematic review of economic evaluations. Med J Islam Repub Iran. 2017 Dec;31:113.
- Jennett PA, Hall LA, Hailey D, Ohinmaa A, Anderson C, Thomas R, Young B, Lorenzetti D, Scott RE. The socioeconomic impact of telehealth: a systematic review. J Telemed Telecare. 2003 Dec;9(6):311-320.
- 17. Ekeland AG, Bowes A, Flottorp S. Effectiveness of telemedicine: asystematic review of reviews. Int J Med

Inform. 2010 Nov;79(11):736-771.

- Central Statistics Office. Situation analysis of elderly in India June 2011. Ministry of Statistics & Programme Implementation, Government of India; New Delhi.
- Verma R, Khanna P. National program of health-care for the elderly in India: A hope for healthy ageing. Int J Prev Med. 2013 Oct;4(10):1103
- Versleijen M, Martin-Khan MG, Whitty JA, Smith AC, Gray LC. A telegeriatric service in a small rural hospital: A case study and cost analysis. J Telemed Telecare. 2015 Dec;21(8):459-68. doi: 10.1177/1357633X15611327.
- 21. Abdi S, Spann A, Borilovic J, de Witte L, Hawley M. Understanding the care and support needs of older people: a scoping review and categorisation using the WHO international classification of functioning, disability and health framework (ICF). BMC Geriatr 2019 Dec;19(1):195.
- Maresova P, Javanmardi E, Barakovic S, Husic JB, Tomsone S, Krejcar O, Kuca K. Consequences of chronic diseases and other limitations associated with old age–a scoping review. BMC Public Health. 2019 Dec;19(1):1431.
- Cowie MR, Anker SD, Cleland JG, Felker GM, Filippatos G, Jaarsma T, Jourdain P, Knight E, Massie B, Ponikowski P, López-Sendón J. Improving care for patients with acute heart failure: before, during and after hospitalization. ESC Heart Failure. 2014 Dec;1(2):110-45.
- Persaud DD, Jreige S, Skedgel C, Finley J, Sargeant J, Hanlon N. An incremental cost analysis of telehealth in Nova Scotia from a societal perspective. J Telemed Telecare. 2005 Mar; 11(2):77-84.
- Brignell M, Wootton R, Gray L. The application of telemedicine to geriatric medicine. Age Ageing. 2007 Jul; 36(4):369-374.
- 26. Goldstein LN, Wells M & Vincent-Lambert C. The costeffectiveness of upfront point-of-care testing in the emergency department: a secondary analysis of a randomised, controlled trial. Scand J Trauma Resusc Emerg Med 27, 110 (2019). https://doi.org/10.1186/s13049-019-0687-2
- 27. Simeon K, Sharma M, Dorward J, Naidoo J, Dlamini N, Moodley P, Samsunder N, Barnabas RV, Garrett N, Drain PK. Comparative cost analysis of point-of-care versus laboratory-based testing to initiate and monitor HIV treatment in South Africa. PLoS One. 2019 Oct 16;14(10):e0223669. doi: 10.1371/journal.pone.0223669.



Research

Clinical profile and comorbidity of elderly patients presenting to a psychiatric outpatient unit of a tertiary care hospital in Odisha, India: a cross sectional study

Debasish Mahanta, Nitya Gopal Mohanty, Shreyan Kar, Satyakam Mohapatra, Nilamadhab Kar

Abstract

Background: With gradually increasing older population, the profile of elderly attending psychiatric services needs exploration to inform changing service needs. Aims: Clinical characteristics of elderly attending a psychiatric outpatient department and the challenges faced by their caregivers were studied. Methods: An explorative, interview-based study. Results: The sample included 78 consecutive (49 male and 29 female) patients; between 60-80 years of age (63.7+4.7); amongst them 12.8% were widowed, and 19.2% were still working. The common diagnoses were schizophrenia and bipolar disorder at 29.5% each, and major depression and dementia 10.3% each. Comorbid physical illnesses were reported in 56%, which were mostly neurological side effects and illnesses (26.9%), hypertension (19.2%), and diabetes (15.4%). Majority (85.9%) of elderly had antipsychotic drugs and 16.4% of them had two antipsychotics. Challenges in caregiving were financial (59.0%), hampered leisure (62.8%) or family (60.3%) activities, psychological stress and mental health problems (55.1% each), and physical health problems (33.3%) and other problems (37.2%). The patients had to travel on an average of 81.9±77.9 km with an average travel time of 2.3 ± 2.0 hours. Conclusion: Most elderly attending psychiatric outpatients had severe mental illnesses and there were major caregiving concerns which need to be addressed.

Key words

Caregivers, Clinical Profile, Comorbidity, Older Adults, Psychiatry,

Introduction

There is a steady increase in the elderly population in India. As per the 2011 census, the population above the age of 60 years was 8.6%,¹ which has been projected to be 19% by 2050.² With an increasing population of older adults, there is significant increase in the prevalence of non-communicable diseases, contributing to increased morbidity. Older adults also have unique challenges such as isolation, frailty, bereavement, abuse and failing sensory organs, all of which impact on their mental

wellbeing. Besides age related health problems, the psychological stress unique to old age contribute to an increased prevalence of mental illness in the elderly. A particular stress comes from the abuse; and many elderly people are subject to various types of abuses.³

Studies suggest that up to 20% of elderly suffer from mental illness.^{4–7} Older people have a higher prevalence of cognitive disorders such as delirium and dementia; along with other psychiatric disorders. The dementia prevalence increases with age; and a recent study in China, reported the weighted prevalence of dementia in people aged 65 years or older was 5.6%.⁸ Depression is a common mental disorder in later life, affecting almost 10% to 20% of older people, which is frequently comorbid with anxiety disorders. Depression is known to increase the risk of suicide, cognitive impairment and dementia in elderly.⁹

A study among elderly attending an outpatient department in India, reported common psychiatric disorders such as mood disorders (48.1%), neurotic, stress related and somatoform disorders (15.5%) and organic, including symptomatic, mental disorders (14.4%).¹⁰ It is known that the mental illnesses in old age have a higher co-morbidity with physical illnesses and increased propensity to drugrelated adverse effects. These are often observed in emergency departments and hospital admissions where comorbidities bring clinical challenges in investigations and treatment of elderly people.¹¹

Increased prevalence of both physical and psychiatric comorbidities lead to increase the suffering, functional impairment, increased admission rate, more days in hospital, increased cost of care, poorer quality of life, increased mortality, and more caregivers' burden.^{12,13}

Consequent to the increased longevity and higher proportion of elderly in the general population, as expected, the number of older patients attending psychiatric clinic have increased over the years. The health sectors of the countries like India should have proper planning to deal with the growing medical and psychiatric needs of the elderly population. This is a matter that needs to be prioritised by all concerned, e.g. the health professionals, social scientists and planners. That may help to design services for their care and to remain appropriately prepared for the increased need on mental and physical health and care related services.

On the above background, it was intended to explore the psychiatric and physical morbidity of the elderly patients attending psychiatric outpatient department. The overarching objective was to understand the needs so that it will be possible to inform all concerned which may strengthen psycho-geriatric services improving the care and treatment of the elderly.

Objectives

The primary objective of the project was to identify the socio-demographic, clinical characteristics, and comorbidities of the elderly patients presenting to a psychiatric outpatient unit of a tertiary care hospital in Odisha. In addition, it was intended to explore the difficulties or challenges experienced by the elderly and their caregivers in accessing mental health services.

Methods

This project was a cross-sectional, hospital-based study conducted in the psychiatric outpatient unit of Mental Health Institute, Department of Psychiatry, SCB Medical College, Cuttack, India. This is a tertiary level psychiatric centre with outpatient and inpatient psychiatric facilities along with clinical psychology, psychiatric nursing and psychiatric social work departments. The average attendance is around 200 patients per day in the outpatient department (OPD) and the institute has 120 inpatient beds.

All consecutive elderly patients (age > 60 years old) who attended the outpatient unit were approached and the study was explained to them. Patients unwilling to participate in the study, and those who were unable to engage in a conversation were excluded from the study. The number of patients over the 3-month period (February to April 2022) of the study was 136, out of whom 58 were excluded due to expressed inability to participate. The final sample number was 78 people.

Data collection

A questionnaire was designed to collect sociodemographic and clinical characteristics, which included age, sex, education, marital status, religion, occupational status, psychiatric diagnosis, comorbidities and whether they were taking antipsychotic medications. Variables exploring the access for psychiatric care were assessed by asking distance and duration of travel to reach the Mental Health Institute. Their primary caregiver and the challenges involved in taking care of the elderly with mental illness were also enquired for.

Ethics

The study was approved by the Institutional Ethics Committee (approval number: 1014, dated 04.02.2022) of the SCB Medical College, Cuttack, Odisha. All the participants were recruited after obtaining written informed consent. Anonymity, option not to participate and withdrawal of consent at any time without assigning any reason were highlighted.

Analysis

Data were entered into an excel sheet and checked for accuracy and quality. Statistical analysis was done by using SPSS software. Missing values were not included in the calculation. Most of the results were presented in percentages and mean with standard deviation (SD). The significance level was kept at 0.05 as standard.

Results

The final sample for this study included 78 individuals (49 male and 29 female) who had consented for inclusion in the study. The age range of this group was between 60 and 80 years old (mean: 63.7 ± 4.7). Gender differences of the sociodemographic profile of the sample are given in Table 1. The educational status of the sample was mostly up to secondary school (29.5%) and primary school (28.2%); no formal education was observed in 21.8%, whereas minority had higher secondary (9.0%), graduate (6.4%), and university/ professional (5.1%) level education. Most of the sample was married (85.9%); a small proportion was widowed (12.8%) and only 1.3% was unmarried. Religion in the sample was mainly Hindu (96.2%), and a small number of Muslims (3.8%). Roughly a third of the sample had never worked (35.9%); almost half had retired (44.9%) and some were still working (19.2%).

Clinical characteristics

Clinical history of the sample is given in Table 2. The most common psychiatric diagnoses were schizophrenia and bipolar disorder (29.5% each), followed by major depression and dementia (10.3% each). Most of the sample, (n=67, 85.9%) were prescribed antipsychotic medication, of which 16.4% (11/67) had two antipsychotics. A sizable proportion (43.6%) had current use of substances which were mostly tobacco chewing 34.9%, smoking 4.2% and using alcohol 4.5%.

Physical comorbidities were reported in 56.4% of the studied population. Most commonly, neurological side effects and illnesses were noted in 26.9% (17.9% cerebrovascular accidents, 5.1% Parkinsonism, 2.6% neuropathic pain, 1.3% epilepsy). Hypertension (19.2%) and diabetes (15.4%) were the next common morbidities followed by dyslipidaemia and obesity (5.1% each).

Caregivers and their concern

Spouses were primary caregiver in (69.2%) of cases, followed by the son (12.8%) and daughter-in-law (7.7%). Other reported primary caregivers included brother, mother, nephew, parents, and sister-in-law (1.3% each). Secondary caregivers included daughter-in-law (16.7%), son (11.5%) and a combination of son and daughter-in-law (8.97%).

Table 1. Gender differences of the sociodemographic profile of the sample							
		Female (n-29)		Male (n-49)		Total (n-78)	
		n	%	n	%	n	%
Education*	No formal education	10	34.5	7	14.3	17	21.8
	Primary	7	24.1	15	30.6	22	28.2
	Secondary	11	37.9	12	24.5	23	29.5
	Higher secondary	0	0.0	7	14.3	7	9.0
	Graduate	1	3.4	4	8.2	5	6.4
	University/professional	0	0.0	4	8.2	4	5.1
Marital Status	Unmarried	0	0.0	1	2.0	1	1.3
	Married	24	82.8	43	87.8	67	85.9
	Widowed	5	17.2	5	10.2	10	12.8
Religion	Hindu	29	100.0	46	93.9	75	96.2
-	Muslim	0	0.0	3	6.1	3	3.8
Occupation [#]	Never worked	28	96.6	0	0.0	28	35.9
-	Retired	1	3.4	34	69.4	35	44.9
	Still working	0	0.0	15	30.6	15	19.2
*Chi-square: 11	.9, df:5, p<0.05; #Chi-square: 73.8	, df:2, p<0.001					

Table 2. Clinical characteris	stics of the sample						
Characteristics	Categories	Female (n-29)		Male (n-49)		Total (n-78)	
		n	%	n	%	n	%
PH of psychiatric illness	No	6	20.7	14	28.6	20	25.6
	Yes	23	79.3	35	71.4	58	74.4
PH of psychiatric treatment	No	9	31.0	14	28.6	23	29.5
	Yes	20	69.0	35	71.4	55	70.5
Substance use*	Never	12	41.4	14	28.6	26	33.3
	In past, not now	2	6.9	16	32.7	18	23.1
	Currently using	15	51.7	19	38.8	34	43.6
FH of mental illness	No	18	62.1	31	63.3	49	62.8
	yes	11	37.9	18	36.7	29	37.2
Psychiatric diagnoses	Dementia	0	0	8	16.3	8	10.3
	Organic psychiatric disorder	1	3.4	2	4.1	3	3.8
	Substance use disorder	0	0.0	3	6.1	3	3.8
	Psychotic disorder	15	51.7	9	18.4	24	30.8
	Mood disorder	9	31.0	22	44.9	31	39.7
	Anxiety disorders	3	10.3	4	8.2	7	9.0
	Sleep disorders	1	3.4	1	2.0	2	2.6
Physical comorbidity [#]	None	12	41.4	22	44.9	34	43.6
-	Neurological disease	8	27.6	13	26.5	21	26.9
	Hypertension	6	20.7	9	18.4	15	19.2
	Diabetes	4	13.8	8	16.3	12	15.4
	Dyslipidaemia	2	6.9	2	4.1	4	5.1
	Obesity	2	6.9	2	4.1	4	5.1
	Others	4	13.8	5	10.2	9	11.5
PH: Past history; FH: Family hist	tory; *Chi-square: 6.834, df:2, p<0.0	5; [#] As reporte	d by patie	ents or their	caregiver	s	

••

Table 3. Challenges of caregiving reported by the family caregivers						
	Female		Male		Total	
	n	%	n	%	n	%
Leisure activities affected	18	62.1	31	63.3	49	62.8
Family activities affected	17	58.6	30	61.2	47	60.3
Financial problems	21	72.4	25	51.0	46	59.0
Psychological stress of carer	14	48.3	29	59.2	43	55.1
Mental health problems in carer	13	44.8	30	61.2	43	55.1
Physical health problems in carer	6	20.7	20	40.8	26	33.3
Other	10	34.5	19	38.8	29	37.2

The patients and caregivers had to travel on an average of 81.9 ± 77.9 km, with a travel time of average 2.3 ± 2.0 hours to access services. They reported a variety of concerns and challenges in caregiving (Table 3). Most commonly, their leisure and relaxation were affected (62.8%), followed by decreased family activities (60.3%), and financial concerns (59.0%). More than half (55.1%) of the caregivers reported stress and burden and mental health problems. There were physical health issues for caregivers (33.3%) and other problems (37.2%) were also reported. There was no difference in caregiving concerns between patients of different genders.

Discussion

This study explored the profile of the older adults attending a psychiatric outpatient clinic in a tertiary health care centre in Eastern India and the caregiving issues reported by their family caregivers. It was expected that the results would suggest areas to focus for improving and developing services and care for older adults with mental health problems.

Psychiatric profile

While mood disorders predominated, psychotic disorders were common; and around 10% had dementia. Similar findings are reported elsewhere.¹⁰ The reason of severe mental illnesses being more common in the sample was that the study was done at a tertiary level psychiatric set up. In addition, being a referral centre it was expected that the patient profile would be more complex.

Although the age of onset was not specifically studied in this research, it was obvious that most elderly people had the onset of their severe mental illnesses early in their life, which continued into older years. However major depressions are common in old age;^{14–16} and many people have the onset of their depression late in old age. Various contributing factors of depression in old age have been reported some of which are modifiable.¹⁷ Attention to comorbidities, loneliness and activities of daily life are needed along with medicinal and psychosocial interventions.

Dementia has been a growing concern in India;^{18–20} with around 2% elderly suffering from it.²¹ The observation in this study that one in ten elderly attending psychiatric outpatient were clinically diagnosed with dementia underscores this. However without the facility for detailed

cognitive assessments in the outpatient set up, these figures may be an underestimate. It has been reported that improved diagnostic assessments may lead to higher prevalence rates for most mental disorders in the elderly.²² There is a need for detailed evaluation and investigation of cognitive functions, which may identify more elderly with mild cognitive impairment or dementia. This may need professional capacity building in the psychiatric set ups in India.

Although the substance use disorders were less, it was noted that more than 40% of participants were using substances. These were mostly chewing tobacco with betel leafs, which is common in this area. However, this is still a concern considering not only their addiction issues but also the physical consequences, as almost half of the oral cancer in India is linked to betel quid chewing.²³

It was interesting to observe that majority (85.9%) of the patients were on antipsychotics, and 16.4% of these patients had two antipsychotics. Polypharmacy including that of antipsychotic drugs is common in older adults;^{24,25} which is considered unsafe based on the increased risk of unacceptable side effects. It is understandable that most of the participants in this study had severe mental illnesses; however polypharmacy with antipsychotics in older adults raises clinical concern and needs closer observation and monitoring.

Physical comorbidities

In older age, it is known that multi-morbidities are common.²⁶⁻²⁸ In the study sample, over half of the patients had physical morbidities as well as their mental illness. This highlights the perspective that more holistic care is needed.²⁹⁻³¹ Ideally, there should be greater access to multidisciplinary teams including other specialties, to comprehensively manage the care of individual patients. There is a key relationship between mental and physical health, so improved care in both are essential for a more positive health outcome.

Caregiving concerns

Stress and burden of caregiving is well-known and reported.^{32–34} Caregivers in this study reported to have been impacted by the process of caregiving and accessing the care. Most of them travelled long distances to receive assessment and treatment. This is a hindrance affecting appropriate care of elderly nearer to their home.

Typically, it is the close family members who are usually identified at the primary carer.³⁵ In our study spouses were the primary caregiver in majority of the cases. Although spouses are known to be primary caregivers, the proportion in our study has been relatively higher. Most of these spouse caregivers are reportedly lone caregivers, in the last years of the life of their spouses.³⁶ They usually provide more care than other caregivers, have greater financial and physical burden, are often isolated, depressed with poor wellbeing.³⁷ Exploration of their condition and additional support are needed, especially when the spouse is the sole caregiver of the elderly person.

While caregiving is enjoyable to an extent, beyond a limit it does affect usual activities of the caregivers, work, career, hobbies relaxation and socialisation etc. as reported in this study. There are also financial struggles for individuals and family, which are well known.³⁸ It has also been reported than many caregivers do suffer from stress-related mental and physical illnesses;^{37,39} and all these negatively impact their own quality of life.

Support for caregivers

It may be worth developing appropriate support for the informal family caregivers in the region, which it appears to be not existent at the moment. Developed nations have carers support and various specific services available to the caregivers; which can be specific to illness type or in general such as respite, day care, social care, end of life care,⁴⁰ along with recourse to trained professional carers. There is an identified need to improve the support provided to the informal family caregivers of older adults.⁴¹ Many approaches to support the carers have been suggested,⁴² including building resilience,⁴³ and providing creative strategies to cope.⁴⁴ However, the methods should be culturally appropriate, implementable and affordable. At the very basic initiation, the contribution of the family caregivers to the care of the elderly should be acknowledged. Psychoeducation about the illness, management strategies, how the informal caregivers can support the elderly and the methods of coping with the burden of caregiving can be provided. Support available locally for the carers can be explored and shared with the caregivers.

Developing old age psychiatry services

It is expected that the proportions of older adults attending the psychiatric departments in India will continue to surge, in relation to the increasing elderly population. The need for appropriate facilities and professionals with expertise in older adult psychiatry are being felt. Similarly, supportive systems for formal and family caregivers are to be developed and further improved.

At the beginning, there is a need to develop expertise in old age psychiatry at least in the tertiary level health care centres such as medical college psychiatry departments. Psychiatrists, clinical psychologists, psychiatric nurses, dieticians, geriatricians, occupational therapists, psychiatric social worker, specifically trained for mental health care of older adults are needed as a multidisciplinary team. More facilities such as memory clinics, care homes for frail elderly or patients with dementia or other debilitating conditions will be required. In addition, social services or different governmental or nongovernmental organisations should be available to support various psychosocial needs of the elderly. Health authorities should prioritise the resources for all these developments.

Limitations

This is a single centre study conducted at a tertiary level. Being a referral centre, the profile of the patients may not be generalizable to other settings. There is a need to include patients from different setting especially from primary health care centres and other set ups including private health service providers which are currently more frequently used. This may be the reason for higher proportions of patients with severe mental illness in the sample; a wider sample from primary care level may provide information about common mental illnesses in older adults.

Sample size was relatively small and there were fewer female patients. Larger sample size from multilevel set ups should be considered in the future study. Comorbidities were documented as reported by the patients or their caregivers. Further evaluations or investigations were beyond the scope of this study which could have given more accurate figures; the current figures could be an underestimate. Future studies should consider investigating for common physical comorbidities along with patient reports.

Conclusion

A considerable proportion of elderly patients attending psychiatric outpatients had severe mental illnesses, with one in ten having dementia. Comorbidity of physical illnesses was common, especially neurological problems, diabetes and hypertension. Family caregivers reported various concerns related to caregiving. The impacts were mostly on their leisure and family activities, financial constraints, psychological stress and burden, mental and physical health issues, besides travelling long distances to access care. There is a need for improving facilities for treatment and care of older adults with mental illness, which should be easily accessible, affordable and provided by trained professionals. In addition, support should be provided to family caregivers for their various concerns.

Acknowledgements

Collaborating and supporting organisations for this study were Geriatric Care and Research Organisation (GeriCaRe), India and The Institute of Insight, UK. Authors acknowledge help of the patients and their caregivers who participated in the project. Administrative support from Mental Health Institute, SCB Medical College, Cuttack, and Quality of Life Research and Development Foundation (QoLReF), India were received for the project. Author information: Debasish Mahanta, MD, Consultant Psychiatrist, Rourkela Government Hospital, Rourkela, Odisha, India; Email[.] nmahanta@gmail.com; ORCID: 0000-0002-7627-5516; Nitva Gopal Mohanty, M.Phil, Psychiatric Social Work, SCB Medical College, Cuttack, Odisha, India; Email: nittyamohanty0@gmail.com; ORCID: 0000-0002-0445-0223; Shreyan Kar, MBChB, Department of Geriatric Medicine, New Cross Hospital, The Royal Wolverhampton NHS Trust, Wolverhampton, West Midlands, WV10 0QP, UK; Email: kar.shreyan@gmail.com ORCID: 0000-0001-7482-1977; Satyakam Mohapatra, MD, Assistant professor, Department of Psychiatry, SCB Medical College. Cuttack, Odisha, India; Email: satyakgmu@gmail.com; ORCID: 0000-0002-5438-2417; Nilamadhab Kar, MD, DPM, DNB, MRCPsych, Consultant Psychiatrist and College Tutor, Black Country Healthcare NHS Foundation Trust, Honorary Professor of Psychiatry, University of Wolverhampton, UK, Honorary Professor, Sri Sri University, India. Email: n.kar@nhs.net ORCID: 0000-0002-8801-9245

Correspondence: Satyakam Mohapatra, MD, Assistant professor, Department of Psychiatry, SCB Medical College. Cuttack, Odisha, India; Email: satyakgmu@gmail.com

Competing interests: None

Received: 27 September 2022; Revised: 14 November 2022; Accepted: 14 November 2022

Copyright © 2022 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Mahanta D, Mohanty NG, Kar S, Mohapatra S, Kar N. Clinical profile and comorbidity of elderly patients presenting to a psychiatric outpatient unit of a tertiary care hospital in Odisha, India: a cross sectional study. Journal of Geriatric Care and Research, 2022, 9, 2: 40-46.

References

- Malik C, Khanna S, Jain Y, Jain R. Geriatric population in India: Demography, vulnerabilities, and healthcare challenges. Journal of Family Medicine and Primary Care. 2021 Jan;10(1):72–6.
- Bloom DE, Sekher TV, Lee J. Longitudinal Aging Study in India (LASI): new data resources for addressing aging in India. Nat Aging. 2021 Dec;1(12):1070–2.
- Bhatia MS, Srivastava S, Moond V. Prevalence of cognitive dysfunction, psychological morbidity and abuse in the community-based elderly population in India. Gen Psychiatr. 2020 Aug 16;33(5):e100207.
- Patel M, Bhardwaj P, Nebhinani N, Goel AD, Patel K. Prevalence of psychiatric disorders among older adults in Jodhpur and stakeholders perspective on responsive health system. J Family Med Prim Care. 2020 Feb 28;9(2):714–20.
- Petrova NN, Khvostikova DA. Prevalence, Structure, and Risk Factors for Mental Disorders in Older People. Adv Gerontol. 2021 Oct 1;11(4):409–15.
- Subedi S, Tausig M, Subedi J, Broughton CL, Williams-Blangero S. Mental illness and disability among elders in developing countries: the case of Nepal. J Aging Health. 2004 Feb;16(1):71–87.
- WHO. Mental health of older adults [Internet]. 2017 [cited 2022 Nov 6]. Available from: https://www.who.int/newsroom/fact-sheets/detail/mental-health-of-older-adults
- Huang Y, Wang Y, Wang H, Liu Z, Yu X, Yan J, et al. Prevalence of mental disorders in China: a cross-sectional epidemiological study. The Lancet Psychiatry. 2019 Mar 1;6(3):211–24.

- Rodda J, Walker Z, Carter J. Depression in older adults. BMJ. 2011 Sep 28;343:d5219.
- Singh GP, Chavan BS, Arun P, Lobraj null, Sidana A. Geriatric Out-Patients with Psychiatric Illnesses in A Teaching hospital setting - A Retrospective Study. Indian J Psychiatry. 2004 Apr;46(2):140–3.
- Piechniczek-Buczek J. Psychiatric emergencies in the elderly population. Emerg Med Clin North Am. 2006 May;24(2):467–90, viii.
- Kar N. Lack of community care facilities for older people and increased rate of admission and length of stay in hospitals. J Geriatr Care Res. 2015;2(2):28–30.
- Jesmin H, Sarkar AA, Ahmed HU, Zannat H. Psychiatric and Physical Comorbidity in Elderly Attending the Geriatric Clinic of a Psychiatric Hospital. Bangladesh Journal of Medicine. 2022;33(1):40–3.
- 14. Barua A, Kar N. Screening for depression in elderly Indian population. Indian J Psychiatry. 2010 Apr;52(2):150–3.
- Barua A, Ghosh M, Kar N, Basilio M. Distribution of depressive disorders in the elderly. J Neurosci Rural Pract. 2010 Jul;1(2):67–73.
- Barua A, Ghosh MK, Kar N, Basilio MA. Prevalence of depressive disorders in the elderly. Ann Saudi Med. 2011 Dec;31(6):620–4.
- Barua A, Ghosh MK, Kar N, Basilio MA. Socio-demographic Factors of Geriatric Depression. Indian J Psychol Med. 2010 Jul;32(2):87–92.
- Shaji S, Promodu K, Abraham T, Roy KJ, Verghese A. An epidemiological study of dementia in a rural community in Kerala, India. Br J Psychiatry. 1996 Jun;168(6):745–9.
- 19. Kar N, Jolley D, Misra B. Handbook of Dementia. 2nd ed. Hyderabad: Paras Medical Publisher; 2010.
- Ravindranath V, Sundarakumar JS. Changing demography and the challenge of dementia in India. Nat Rev Neurol. 2021 Dec;17(12):747–58.
- Choudhary A, Ranjan JK, Asthana HS. Prevalence of dementia in India: A systematic review and meta-analysis. Indian Journal of Public Health. 2021 Jan 4;65(2):152.
- Andreas S, Schulz H, Volkert J, Dehoust M, Sehner S, Suling A, et al. Prevalence of mental disorders in elderly people: The European MentDis_ICF65+ study. The British Journal of Psychiatry. 2017 Feb;210(2):125–31.
- Travasso C. Betel quid chewing is responsible for half of oral cancer cases in India, finds study. BMJ. 2013 Dec 16;347:f7536.
- Rochon PA, Petrovic M, Cherubini A, Onder G, O'Mahony D, Sternberg SA, et al. Polypharmacy, inappropriate prescribing, and deprescribing in older people: through a sex and gender lens. The Lancet Healthy Longevity. 2021 May 1;2(5):e290–300.

- Stuhec M. Antipsychotic treatment in elderly patients on polypharmacy with schizophrenia. Curr Opin Psychiatry. 2022 Sep 1;35(5):332–7.
- Kar N. Holistic care for older adults needs attention to multimorbidity. Journal of Geriatric Care and Research. 2019;6(1):1–2.
- Calderón-Larrañaga A, Vetrano DL, Onder G, Gimeno-Feliu LA, Coscollar-Santaliestra C, Carfí A, et al. Assessing and Measuring Chronic Multimorbidity in the Older Population: A Proposal for Its Operationalization. J Gerontol A Biol Sci Med Sci. 2017 Oct 1;72(10):1417–23.
- Kar S, Das T, Mohapatra PK, Kar B, Senapati A, Kar N. Health Concerns of Older Adults: Observations from a Survey and Public Education Programme in Bhubaneswar, India. Journal of Indian Academy of Geriatrics. 2019;15:10–6.
- Bao J, Chua KC, Prina M, Prince M. Multimorbidity and care dependence in older adults: a longitudinal analysis of findings from the 10/66 study. BMC Public Health. 2019 May 16;19(1):585.
- 30. Kar N. For elderly, care is the key. Journal of Geriatric Care and Research. 2014 Oct 1;1:1.
- 31. Kar N. Care needs of older persons. Journal of Geriatric Care and Research. 2015 Jul 16;2:1–2.
- 32. Souza ALR, Guimarães RA, de Araújo Vilela D, de Assis RM, de Almeida Cavalcante Oliveira LM, Souza MR, et al. Factors associated with the burden of family caregivers of patients with mental disorders: a cross-sectional study. BMC Psychiatry [Internet]. 2017 Oct 25 [cited 2021 Jan 6];17. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5655908/
- Garlo K, O'Leary JR, Van Ness PH, Fried TR. Caregiver Burden in Caregivers of Older Adults with Advanced Illness. J Am Geriatr Soc. 2010 Dec;58(12):2315–22.
- Kar N, Sharma P, Sengupta S. Caregiver's concerns in dementia. Indian Journal of Gerontology. 2000;14(1–2):44– 9.
- Schulz R, Eden J, Adults C on FC for O, Services B on HC, Division H and M, National Academies of Sciences E. Family Caregiving Roles and Impacts [Internet]. Families Caring for

an Aging America. National Academies Press (US); 2016 [cited 2021 Jan 6]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK396398/

- Ornstein KA, Wolff JL, Bollens-Lund E, Rahman OK, Kelley AS. Spousal Caregivers Are Caregiving Alone In The Last Years Of Life. Health Affairs. 2019 Jun;38(6):964–72.
- Pinquart M, Sörensen S. Spouses, Adult Children, and Children-in-Law as Caregivers of Older Adults: A Meta-Analytic Comparison. Psychol Aging. 2011 Mar;26(1):1–14.
- Wolff JL, Mulcahy J, Huang J, Roth DL, Covinsky K, Kasper JD. Family Caregivers of Older Adults, 1999-2015: Trends in Characteristics, Circumstances, and Role-Related Appraisal. Gerontologist. 2018 Nov 3;58(6):1021–32.
- Schulz R, Sherwood PR. Physical and Mental Health Effects of Family Caregiving. Am J Nurs. 2008 Sep;108(9 Suppl):23– 7.
- National Guideline Centre (UK). Evidence review: Carer support services: End of life care for adults: service delivery: Evidence review H [Internet]. London: National Institute for Health and Care Excellence (NICE); 2019 [cited 2022 Nov 7]. (NICE Evidence Reviews Collection). Available from: http://www.ncbi.nlm.nih.gov/books/NBK558762/
- Peters M, Rand S, Fitzpatrick R. Enhancing primary care support for informal carers: A scoping study with professional stakeholders. Health Soc Care Community. 2020 Mar;28(2):642–50.
- Schulz R, Beach SR, Czaja SJ, Martire LM, Monin JK. Family Caregiving for Older Adults. Annu Rev Psychol. 2020 Jan 4;71:635–59.
- Parkinson M, Carr SM, Rushmer R, Abley C. Investigating what works to support family carers of people with dementia: a rapid realist review. J Public Health (Oxf). 2017 Dec 1;39(4):e290–301.
- Ploeg J, Northwood M, Duggleby W, McAiney CA, Chambers T, Peacock S, et al. Caregivers of older adults with dementia and multiple chronic conditions: Exploring their experiences with significant changes. Dementia (London). 2020 Nov;19(8):2601–20.



Review

Role of community health workers as trans-disciplinary models for decreasing the impact of dementia on care partners of persons suffering from dementia: a scoping review

Subhadra Kudukkasseri Thrivikraman, Gowtham Dev

Abstract

Background: Dementia is a progressive disease associated with many misperceptions and stigma, hence to address dementia and associated care burden by engaging community health workers (CHW) as trans-disciplinary models may be a feasible option for the effective management of dementia and its care burden. Aim: To identify the published literature addressing the possible engagement of CHWs in dementia care management and the management of its impact on care partners as a care burden. Methods: A qualitative literature search was carried out in PubMed and Google Scholar, using the appropriate describers, to surf through articles published between 2016-2021. Results: The review identified that with the increasing number of patients with dementia, there were various attempts undertaken to improve family carer support and on managing the negative impact on care partners' health that occur as an outcome of caring for people living with dementia. There were no conclusive recommendations made on 'what works better to support care partners and 'what are potentially employable strategies that yield results. Conclusion: 'Care ecosystem' model can be considered as an alternative strategy in dementia care requirements. Transdisciplinary models incorporating collaborative care programs aimed at reducing behavioural symptoms, improved functioning, and enhanced quality of life, with appropriate usage of already employed care delivery mechanism, yields fruitful results.

Key words

Care Partners, Community Health Worker, Dementia, People living with dementia, Trans-disciplinary Model

Introduction

Dementia is the seventh leading cause of mortality across the globe.¹ It is recognized to be the major cause of disability and dependency among older people. Dementia affects the physical, psychological, social, and economic domains of patients themselves, their care partners, and thus society too.¹ Dementia is a stigmatized condition accompanied by a profound misconception that "nothing can be done." The underlying needs and care demands of persons with dementia and their care partners often remain unrecognized until a serious crisis emerges. Dementia, even though, may have the same disease prognosis among patients, doesn't affect each patient uniformly, affecting their daily routines, role performances, orientation etc. It also affects the individual autonomy of the patient.² The impact on care partners also tend to vary from patient to patient. It is the functional capability and level of patient performance that affect care partners. Patient activities from simple to complex nature require assistance in later stages, making the care partner overwhelmed with care concerns.³ Most systematic reviews identify the impact of dementia on care participants as multifaceted; affecting (i) their quality of life (QoL), and the optimum age-specific activities of life and (ii) the caregiver burden (resultant stress and strain caused by care complexity).⁴ A cross-sectional study found that the care partners caring for a person living with dementia (PLWD) is having poorer health when compared with the carers of a chronic disease patient. The study also reported elevated levels of symptoms of depression predicting lower QoL among care partners. Hence, there is a dire need to operationalize transdisciplinary models for reducing the dementia-associated impact on their care partners.⁵ It was addressed in the global action plan on the public health response to dementia 2017-2025, that the worldwide dementia patients may escalate up to 78 million in 2030 and 139 million in 2050.⁶ These findings critically suggest to 'think on' the availability of care partners with proper context of information, understanding on treatment, prognosis and care resources.¹

Research evidence suggests that early intervention delays functional decline among people with dementia. In addition, studies suggest that non-pharmacological interventions work effectively both in persons with dementia and their care partners (dyadic interventions),⁷ and are free from drug-associated side effects.⁸ Systematic reviews report that 'burnout syndrome' associated with giving care to a patient with dementia negatively affected caregivers' QoL and was found to be correlated with the patient's depression and anxiety symptoms and the patient's abusive nature. Social isolation, poor self-health, and negative outcomes of caring are identified burnout predictors among family caregivers of PLWD.⁹

Dementia will soon be one of the most serious challenges to be faced by families and health and social care services worldwide as the increasing longevity of the human population contributes to a very huge rise in the number of PLWD. As the curative prognosis of dementia is low, PLWD requires/demands essential long-term care. Sadly, the majority of the care partners 'rely on' and follow 'trial and error' approaches in fulfilling their carer role that is not evidence-based, or scientifically accurate, and hence do not guarantee long-term success.¹⁰ Thus, there is a dire need to streamline and formulate long-term management strategies for the dementia patient and care partner according to the cultural and geographical contexts of different countries. Many times PLWD wish to continue in their home settings. The quality of care provided at home thus influences; (i) their decision to continue to receive services at home, (ii) his/her QoL, and (iii) the impact of the carer burden. Hence, it may be recalled that high-quality and effective person-centred communitybased dementia care, requires a highly knowledgeable and socially empathetic workforce. In most low- and middleincome countries (LMIC), PLWDs are cared for at home. They are institutionalised only in the event of a care requirement escalation or in acute health emergencies. In many of the developed countries too, PLWD wish to continue living at home.¹¹

It is being observed among the majority of the families that, the initial diagnosis (first-time confirmatory) is a turning point in the life of PLWD and family members especially the immediate care partners as this marks a milestone where the PLWD becomes known as a patient and most of the immediate family members make a formal entry into the role of a care partner. This transition period taxes the care partners where the care partners are required to accept, adapt and learn to cope with the changes in behaviour and mood swings of the patient. In most instances, family members have very limited health literacy regarding the condition and its prognosis. Potentially they may also be unaware of the community resources for receiving services. In addition, the diagnosis also creates a feeling of stigma which forces the patient and family members to detach from their family and social circle.¹² Reviews of scientific research have found that the family members who received training on different aspects of dementia management and patient care, handled the situation more swiftly and confidently. These people were also found to socialise better when compared to persons who had not received such training. To recommend further, quality home care management for PLWD will only be a possible initiative to enhance the care partner's competence and to manage their sense of isolation, depression, anxiety, and burnout events.¹³

There is an acute shortage of skilled health care workers globally for effective dementia care management.¹⁴ An alternative chosen by many countries to address this shortage is through utilizing community health workers (CHWs). The LMIC employ CHWs to provide healthcare services and health promotive interventions in the

community due to their resource limitations. As CHWs are not trained health professionals, they are given subsidiary training on different health related programs and are vested with responsibilities to serve in their respective communities according to the service requirements. They carry out synonymous roles and are 'termed' as; traditional birth attendant, community health volunteer, village health guide, community health navigator, health advocates, lay health workers, community health promoter, Accredited Social Health Activist (ASHA) etc. The American Public Health Association defines a CHW as "a frontline public health worker who is a trustworthy member and/or has an unusually close understanding of and trust from the communities they serve." CHWs deliver multifaceted services focussing on development at the individual and community level in general health that are more off in preventive, curative, educative, or developmental in nature.¹⁵ Since cognitive impairment is becoming a common phenomenon noted widely among the aging population worldwide, to alleviate the associated concerns and adverse outcomes, there should be an intervening component that places the CHWs- care participantspatients- health system across a continuum. Tailored models that 'fit in' contextually with the care protocol needs an exploration for determining their merits and demerits.16

Purpose statement of the review

While considering the Millennium Development goals for sustainable development, we require a designated health task force to recognize and manage the health needs of each individual and every society, that to a much possible extend can be addressed through CHWs. Hence, this article intends to review the literature where CHWs has been utilised as trans-disciplinary models in the management of community dementia.

Objective

The specific objective of the study was to review the conceptual framework and findings of published literature on the role of CHW and different trans-disciplinary models in the area of dementia care.

Methodology

Research design: The design adopted for this review was a qualitative scoping review method. This review involved the usage of two databases in order to gather data on all relevant published literature that fits our stated inclusion criteria. The authors made significant efforts to include all varieties of published articles results of which are reliable, quantifiable, and reproducible.

Literature reviews were carried out in the PubMed, Google Scholar, using the following describers; "community health worker*" OR "volunteer health worker*" OR "lay health worker*" OR "lay health advis*r" OR "lay health advis*rs" OR "lay health educator*" OR "village health worker*" OR "village health volunteer*" OR "lady health worker*" OR "community health volunteer*" OR "community health agent*" OR "community health promotion" OR "community health promoter*" OR "community health aide*" OR "health assistant worker*" OR "home based care" OR "home community based care*" OR "community health agent*" OR "health surveillance assistant*" OR "community care giver*" OR "community caregiver" OR "accredited social health activists" OR "asha" OR "mitanins" OR "mitanin" OR "family health team*" OR "family health program*" OR "integrated community case management" OR "ICCM" AND "Depression" OR "Burn out" OR "Stress" OR "Burden" And "Caregiver of people living with dementia" OR Care Partner of People Living with dementia".

Inclusion criteria: This review included only those articles which dealt with the role of CHWs in the field of dementia care and caregiver stress or burnout. The articles selected were those published between 2016-2021. Articles were searched in both published as well as in grey literature.



Table 1: Table comprehensively depicting the findings of the literature search					
Authors, Country, Type of source, Year	Conceptual framework	Findings			
Garza et al ¹⁷ US, Report, 2020	CHWs (promoters) activities were to contact & mobilise communities	Knowledge regarding culture of community may enhance quality of services.			
Flaherty E et al ¹⁸ US, Report, 2019	The treatment plan of preventing patient relapse is met through a case manager who follows instructions of a primary care physician. Geriatric Inter-professional Team Transformation (GITT- PC) is a designated model for elderly with complex health concerns. Works by a collaborative partnerships between health professionals and community service providers. Focus on work task reallocation through Medicare reimbursable visits like (i) Annual Wellness Visit, (ii) Chronic Care Management, (iii) Transitional Care Management, and (iv) Advance Care Planning and management along with community case managers	Discussed various models that deliver community-based programs that that empowers older adults, their families, and caregivers with essential knowledge and skills that require improving health outcomes and existing quality of care.			
Long H et al ¹⁹ China, Review, 2018	CHWs possess the capacity to deliver community (individual to individual) rooted NCDs preventive interventions.	In order to increase the generalizability and sustainability of service programs, research studies with robust designs are needed to explore the effectiveness of CHW-led programs, and to suggest alternative interventions/strategies to improve the quality of service of CHWs in various settings.			
Goeman et al ²⁰ Australia, Systematic review, 2016	Key workers with a positive impact on carer burden and improved QoL can be best incorporated/utilized in long term intervention, face to face contact, individualised education and support based on needs, and in multi-disciplinary teams.	Support worker role needs a cost- effective analysis. The support worker role is envisioned to become a probable solution in the event of fragmented service delivery, poor service co-ordination and poor collaboration between the providers and the end users.			
Holthe T et al ²¹ Norway, Qualitative Study, 2020	This study tried to identify how community health care workers enacted current policy on technology among home-dwelling citizens with mild cognitive impairment/dementia.	CHW act as machinery for translating policies into everyday lives of citizens with mild cognitive impairment/ dementia. The challenges identified were their perceived lack of knowledge and practical experiences that force them to refrain from activities that required some professional skills.			
Huang W et al ²² China, Systematic Review, 2018	CHW as village doctors. Barriers towards enabling CHWs as village doctors are sustainability issues like (i) transportation (ii) concerns, (iii) nature of administrative support, (iv) quantity and quality training sessions, (v) incentives for CHWs, and (vi) maintaining a good rapport between CHWs and target population.	This review identified facilitating factors like positive and open administrative framework, integration with the existing health system, financial support, considering CHW's perspectives, and technology support.			
Possin et al ²³ US, Randomised control trial, 2019	The Care Ecosystem, a telephone-based supportive care intervention for patients with dementia and their caregivers. In this model The "Care Team Navigator" (CTN), screen for common problems and provide support and standardized education. The CTNs triage complex medical or social issues to a nurse, social worker, or pharmacist and coordinate care with other health providers.	According to this study, the care team navigator is an unlicensed, trained dementia care guide who serves as the patient and caregiver's primary point of contact. This trail has shown that CTN decrease care partner's burn out.			

Pozet et al ²⁴	A social worker giving basic information about	The care partners reported better
control trial, 2016	module booklet	worker helping them out
Wolff et al ²⁵	Health Care workers supporting informal	Caregivers-reported better feelings
US, Observational	caregivers	while on interaction with health care
survey, 2020		workers. The care partners felt being
•		'included' and 'addressed' The
		survey also facilitated in
		understanding the sort of assistance
26		they require for managing dementia.
Lethin et al^{20}	Community psychiatric nurse carries out needs	National guidelines for dementia care
Europe, Cross	assessment and makes care decision to support	are required for better care and to
sectional Study, 2010	bomes. Case manager responsibility includes (i)	aneviate care partners issues.
	case finding and outreach (ii) comprehensive	
	assessment and care planning. (iii) coordination of	
	service, monitoring & evaluation, and (iv) meeting	
	special needs of demented elderly.	
Yang et al ²⁷	Requirement of CHW in health care system	CHWs play a vital role in meeting the
China, Mixed		general health care needs and special
methodology, 2020		needs of elderly with dementia.
Van Ginnekan et al ²⁶	CHWs provide health care in collaboration with	CHW-led carer interventions may
India, Russia,	specialists. Carer mental health status, carer QoL	nave a little-to-no effect on the
2016 & 2021	scores/values/presentations in the case of an	dementia natients but their assistance
2010 & 2021	ordinary care provider and professional care	can reduce carers' mental distress.
	provider.	
Philip et al ²⁹	Volunteer- Role in lighting the "burden" of the	This study recognised the role of
India, Qualitative	family. Volunteers improved acceptance and	volunteer as interdependent one that
study, 2019	outcomes in palliative work both as a professional	is required in the delivery of health
	team member and as a care partner helped in	care and in meeting the needs of the
	sustaining the palliative care program for last 20	family and society at large.
Schneider et al ³⁰	In Ethionia CHW are health extension workers	The study substantiates with
46 countries. Scoping	In India and Brazil, the review found that CHWs	empirical evidence, the increasing
review, 2016	had been mostly instrumental in dementia related	expectations of the family
,	activities. In LMIC, CHWs help to meet the	members/society and different
	Millennium Development Goals	initiatives for addressing health
		related burdens through community-
$-2.1 + 1^{31}$		based action schemes.
Goh et al	Investigating the effectiveness of dementia training	The training programs enable PLWD
raviow 2018	programmes for community nome care	community inclusion in demontia
10v10w, 2018	professionals and freature care workers (frews)	management developing dementia-
		friendly environment and trained
		HCWs for dementia care.
Laporte et al ³²	Outcome of caregiver burden and usage of the	Employing an interdisciplinary team
Germany, Qualitative	Dementia Care Network	approach helps in reducing the care
study, 2017		partner's burnout.
Zwerling et al	Care giver stress can be better managed through	The report highlighted that care giver
2016	social worker	when a social worker involved in the
2010		care process.
Cross Barnet et al ³⁴	Evaluation of activities of CHW: As a member of	CHWs not only facilitated in
US, Mixed	member of Care Delivery Team provide direct services	improving the access to care but also
methodology study,	collaborating with medical professionals. As a navigator,	helped patients and care partners to be
2018	helps patients understand, access and utilize the HealthCare system. As a Screening and Health Education	empowered with respect to their role
	Provider, focuses on screening for complications and	expectations and involve intensively
	being instrumental carrying out incidental education. As	in the care process.
	a Community Organizer, promotes "community	
	integration action and build community support"	

Results

The literature search was done through the usage of the above-described Boolean operators. The references of the included articles/reports were reviewed. Titles, abstracts and full-text papers retrieved were independently reviewed by two reviewers SKT and GD. Disagreements were adjudicated through mutual discussions and suggestions obtained from expert reviewers through consultation. The search resulted in 424 articles. After checking for inclusion criteria and duplicates, only 18 articles were selected for this review. The schematic presentation of the search strategy and its progression is presented in Fig 1.

The summary of evidence reviewed from literature

The Cognitive Disorders Specialty Care Education Centre of Excellence (COE) designed a trajectory framework for caregiver support services, which included, (i) provision of training, (ii) engaging in formal programs and (iii) linking with stakeholders/resources. The evaluation of these services helped to identify the current gap in care partner's perception and further opined on the need for strengthening the existing care partner support strategies.³⁵ Organised efforts of CHWs in capacity building of care partners and ensuring the community participation in this initiative and any such replicated community activities help to equip the care partners by merging with a trained community workforce.^{18,19} This community activation and participation helps to create a positive relationship with individual patients and their care partners along with adequate logistical support and supplies.²² A favourable thought is that the inclusion of CHWs in such programs makes the programs more sustainable and scalable. This framework fosters decentralisation and accountability of the service providers, different stakeholders, and the key governance statutes.21,36

Programs for managing PLWD within their 'own' environments were somewhat successfully implemented in Australia,³¹ and in US,^{23,25} it tries to devise an orientation plan that delays the progression of the disease.³⁷ The associated care burden in managing mental disorders and the reported treatment gaps coupled with pitfalls in service delivery resulted in a proposal to involve non-specialists,^{26,27} (CHWs / Care partners) in the provision of essential mental healthcare services.³⁸

Similarly, another initiative in the United States incorporated Environmental Skill-Building Program (ESP; renamed as Skills2CareR) with a homecare practice perspective.³⁹ In fact, it is being proved that a scaled-up CHWs taskforce shall deliver a modelling exercise of care, supporting PLWD and their care partners to contribute a model of cost and benefit for their nation.^{30,31} As an example; In the United Kingdom, the National Health Services Primary Care, suggested that 110,585 CHWs delivering integrated services to the registered population cost £2.22bn annually. As an extension in their service package, CHWs shall perform home-based health promotion,³³ and offer basic life course support to patients diagnosed with other chronic diseases.⁴⁰

Discussion

Advances in longevity and medicine contributed in such a way that many people survive deadly diseases but instead become prey to life-limiting diseases such as dementia.⁴¹ It is estimated that within the next 10 years, especially in low and middle-income countries there will be a large number of PLWD who inevitably requires their family members to take care of them.⁴² A central challenge here is to identify the needs of the care participants and to manage the QoL of both the carer and PLWD. There were no conclusive recommendations anywhere found on 'what works better' to support care partners and what are the 'potentially employable strategies' that yield results. Hence, it calls for a loud thinking need to find a coherent approach to family carer support.⁴³

Focussed features of this review: The present review adds to the existing literature by highlighting the potential for a more coherent and cohesive means of organizing and orchestrating support for care partners of PLWD by focussing positively and constructively on the relative strengths (physical, mental and social) of care partners,²⁰ particularly their capacity for resilience²³ and resiliencebuilding.²⁵ This review has put tremendous effort to unravel some of the complexities inherent in the process of care and strategies to support care partners of PLWD by offering them a guiding protocol and clear rationale for better management.²⁹ Through the mobilization of a wider range of individual (care partner-oriented interventions) and external resources,²⁶ more comprehensive and positive outcomes can be evidenced in the process of care.²⁶ Hence, this collective effort proposes to call for a paradigm shift, 'on how dementia care is perceived by the care partners', i.e. way too far from the traditional methodology 'that assesses only the burden of care'.³²

Certain models (trans-disciplinary in orientation) focus on 'reasons for failure' while others focus on the sustainability of family care, i.e. by enquiring about the family carers' potential in maintaining their strength and resilience.^{31,32,44} Focussing attention on the care partner's 'resilience' and 'resilience-building' effectively reframes how we (public) perceive the carer role and how carers themselves perceive it while emphasizing how caregiving can be made successful. Equipping society by tapping the large human resources in the society and integrating them into the health care delivery system by bringing policy changes tailored to the needs of the particular societies will help in bringing out more sustainable management strategies in dementia and care partner burnout.⁴⁵

Though it is a fact that employing CHWs may be a challenging drive to meet the Millennium Development Goals,³⁰ these developments are provider-dependent, resulting in a fragmented service delivery where recipients' disease-specific responses will only be addressed as rightly indicated by certain authors.^{24,28,46} Hence for upscaling and implementing the vast majority plethora in new initiatives, it has to be integrated into coherent national programmes and local primary health care systems.⁴⁷

Trans-disciplinary models for dementia care in India: a snapshot

In India, a lot of work has already been done in dementia care, echoing propositions by international organizations. In this purview, many models were proposed by different experts in the field. A classic example of such a transdisciplinary model is Kerala State Initiative on Dementia which lays its axis around (i) spreading awareness, (ii) equipping the professional workforce, (iii) building a caregiver network, (iv) opening care centres, and (v) establishment of memory clinics.⁴⁸ Memory clinics address various challenges associated with the condition thus reducing caregiver stress. They can also act as a platform for training, education and research and helps in the operationalization of dementia-friendly communities. The memory clinic model identifies reversible/treatable causes of cognitive impairment through a multidisciplinary team approach. Hence, it paves for early identification and management, treatment of comorbidities and counselling for patients and their care participants. The model even though envisages an outpatient service, has provision for inpatients stay for a maximum of three days for assessment and investigations. The model holds an outer layer addressing mechanism for rationalizing medications, psychosocial support, family support, and expert treatment opinion and advice.

A proposal on Collaborative Community-based Care (CCBC) visualizes the inclusion of lay health workers for awareness sessions, identification and screening and referral to an expert. A piloting of this trans-disciplinary model for its quality, effectiveness, feasibility, and acceptability is the need of the current hour. The model will yield to identify the service gap in dementia, mobilization of untapped resources, cost management, and revitalizing of the health system.⁵⁰

Trans-disciplinary models for dementia management are crafted based on clinical guidelines & practice recommendations, to which different flavours like family support, care settings, management network and health system is added in appropriate quantities to elicit desired outcomes. All models start with (i) detection of the case (through general practitioners or members of the health care team), (ii) confirmation of the case (by an expert in dementia), (iii) assessment and re-assessment for care planning (from this phase the team includes care partners and volunteers from health system). The models then further inculcate supportive measures for care participants, assisting the patients with activities of daily living (ensures patient safety). As the models gain momentum in action, they tend to try changes in the therapeutic environment (try modifications), pilot personalized care transitions. The model at the end will have referral and coordinating mechanisms that actively invite collaborations from other agencies and ensures addressing the needs of patients and family via mutual initiatives.⁵¹ In another comprehensive evaluation conducted on the dementia care activity analysis, only very few activities utilised services of CHWs.⁵² A similar finding was reported in another review too by incorporating the CHWs in health care facilities to

decrease the economic burden of dementia care.⁵³ Hence more incorporation of such locally available human resources will help in meeting the Millennium Development Goals more sustainably.

Limitations

Googlescholar and PubMed were the databases used for this scoping review. Other electronic databases such as Embase, PsycINFO, CINAHL, Cochrane, etc. were not included in the literature search. As a result, this paper doesn't seem to fit the standardized criteria which are considered ideal for a scoping review (minimum of three databases is recommended for an ideal scoping review). Henceforth, this review may have presented fragmented results, which cannot be considered a compilation of all available evidences.

Conclusion

The rapidly increasing proportion of people with cognitive impairment imposes resource challenges (Man, Money, and Material). The care ecosystem is an appropriate solution for managing clients with dementia and their care partner's burnouts since it enables them to utilise their time effectively and appropriately, support and receive training to systematically screen, diagnose and adhere to protocols of dementia management. In addition, it enhances confidence and provides adequate psychosocial support for care managers. Employing Trans-disciplinary models of collaborative care improves symptom management and QoL of PLWD. Such models contribute feasible, efficient and cost-effective strategies in dementia care and supporting care participants.

This review discussed several models that highlighted collaborative care programs for dementia that focus on managing behavioural symptoms, improved physical status and resultant QoL, less dependency on acute medical services, and an overall marked decrease in the caregiver burden. These evidence-based models facilitate the delivery of highly effective dementia care, meeting the treatment standards in cost-effective manner. This scoping review discussed the impact of dementia care services utilising CHWs on care partners and regarding some potentially employable models that can make significant changes in the already strained care pathway.

Acknowledgment

The authors sincerely thank the Kerala University of Health Sciences, especially Dr. Shaji KS (Dean Research) for providing access to the requisite databases and for the support given till the publication of this manuscript.

Author information: Subhadra Kudukkasseri Thrivikraman, MD, Associate Professor, School of Family Health Studies, Kerala University of Health Sciences, Medical College, Thrissur, 680596, India, Email: <u>drsubhadrapai@gmail.com</u>; ORCID:0000-0003-1352-5546; Gowtham Dev, MSc, Nursing, Research Fellow, Centre for Gerontological Studies, Kerala University of Health Sciences, Medical College, Thrissur, 680596, Email: <u>gdevalackal@gmail.com</u>; ORCID: 0000-0002-5336-2916

Correspondence: Dr Subhadra Kudukkasseri Thrivikraman, Associate Professor, School of Family Health Studies, Kerala University of Health Sciences, Medical College, Thrissur, 680596, drsubhadrapai@gmail.com

Competing interests: None

Received: 13 October 2022; Revised: 19 November 2022; Accepted: 19 November 2022

Copyright © 2022 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Thrivikraman SK, Dev G.. Role of community health workers as trans-disciplinary models for decreasing the impact of dementia on care partners of persons suffering from dementia: a scoping review. Journal of Geriatric Care and Research, 2022, 9, 2: 47-56.

References

- 1. Dementia [Internet]. Who.int. 2022 [cited 15 July 2022]. Available from: <u>https://www.who.int/news-room/fact-sheets/detail/dementia</u>
- Bjørkløf GH, Helvik AS, Ibsen TL, et al. Balancing the struggle to live with dementia: a systematic meta-synthesis of coping; BMC Geriatr; 2019; 295; (1);2-24. DOIhttps://doi.org/10.1186/s12877-019-1306-9.
- Cipriani G, Danti S, Picchi L, et al. Daily functioning and dementia. Dementia & amp; Neuropsychologia; 2020; 14(2):93-102.
- Horton M, Oyebode J, Clare L, et al. Measuring Quality of Life in Carers of People With Dementia: Development and Psychometric Evaluation of Scales measuring the Impact of DEmentia on CARers (SIDECAR); Gerontologist; 2019;61(3);1-11. DOI: <u>10.1093/geront/gnz136</u>.
- Karg N, Graessel E, Randzio O, Pendergrass A. Dementia as a predictor of care-related quality of life in informal caregivers: a cross-sectional study to investigate differences in health-related outcomes between dementia and nondementia caregivers; BMC Geriatrics; 2018; 18(189); 2-9.doi: 10.1186/s12877-018-0885-1.
- Prince M, Wimo A, Guerchet M, Ali GC, Wu Yutzu, Prina M, World Alzheimer Report 2015. The global impact of dementia: an analysis of prevalence, incidence, cost and trends [Internet]. London: Alzheimer's Disease International; 2015. [cited 15th July 2022]. P.7-46. Available from https://www.alzint.org/u/WorldAlzheimerReport 2015.pdf
- Laver K, Dyer S, Whitehead C, et al. Interventions to delay functional decline in people with dementia: a systematic review of systematic reviews; BMJ Open 2016;6 (4);107-67.doi:10.1136/bmjopen-2015-01076
- Bond M, Rogers G, Peters J, et al. The effectiveness and cost-effectiveness of donepezil, galantamine, rivastigmine and memantine for the treatment of Alzheimer's disease (review of Technology Appraisal No. 111): a systematic review and economic model; Health Technol Assess; 2012; 16(21); 1-470. doi: 10.3310/hta16210.
- Alves LCS, Monteiro DQ, Bento SR, et al. Burnout syndrome in informal caregivers of older adults with dementia: A systematic review; Dement Neuropsychol; 2019; Oct-Dec;13(4); 415-421. doi: 10.1590/1980-57642018dn13-040008.

- Nolan M, Ryan T, Enderby P, Reid D. Towards a More Inclusive Vision of Dementia Care Practice and Research; Dementia;2002;1(2);193-211. doi:10.1177/147130120200100206
- Goh AMY, Gaffy E, Hallam B, et al. An update on dementia training programmes in home and community care; Curr Opin Psychiatry; 2018 Sep;31(5); 417-423. doi: 10.1097/YCO.000000000000438.
- Werner P, Mittelman MS, Goldstein D, et al. Family stigma and caregiver burden in Alzheimer's disease; Gerontologist; 2012 Feb;52(1); 89-97. doi: 10.1093/geront/gnr117
- Schaeter R, Richard T. Sociology: a brief introduction [internet]; 10th edition; Dubuque, Iowa; Mcgraw-Hill; 2013 [cited 2nd August 2022]. Available from https:// umbrella.lib.umb.edu
- 14. The World Health Report 2006 Working Together for Health | National Prevention Information Network | Connecting public health professionals with trusted information and each other [Internet]. Npin.cdc.gov. 2022; [cited 18 July 2022]. Available from: https://npin.cdc.gov/ publication/world-health-report-2006-working-togetherhealth
- O'Donovan J, O'Donovan C, Kuhn I, et al. Ongoing training of community health workers in low-income and middleincome countries: a systematic scoping review of the literature; BMJ Open [Internet]; 2018 Apr 28;8(4); e021467. doi: 10.1136/bmjopen-2017-021467.
- Mullins M, Bynum J, Judd S, et al. Access to primary care and cognitive impairment: results from a national community study of aging Americans; BMC Geriatrics.; 2021;580 (1). https://doi.org/10.1186/s12877-021-02545-8
- Garza N, Uscamayta-Ayvar M, Maestre GE. Addressing Neurocognitive Disorders, Dementias, and Alzheimer's Disease in Colonias of the Lower Rio Grande Valley: Establishing a Research Foundation Using Promotores; Ethn Dis; 2020; 30(Suppl 2); 775-780. doi: 10.18865/ed.30.S2 .775.
- Flaherty E, Bartels SJ. Addressing the Community-Based Geriatric Healthcare Workforce Shortage by Leveraging the Potential of Interprofessional Teams. J Am Geriatr Soc; 2019; 67(S2); 400-408. doi: 10.1111/jgs.15924.
- Long H, Huang W, Zheng P, et al. Barriers and Facilitators of Engaging Community Health Workers in Non-Communicable Disease (NCD) Prevention and Control in China: A Systematic Review (2006⁻2016); Int J Environ Res Public Health; 2018;15(11):2378. doi: 10.3390/ijerph 15112378.
- Goeman D, Renehan E, Koch S. What is the effectiveness of the support worker role for people with dementia and their carers? A systematic review; BMC Health Serv Res; 2016; 285:16. <u>doi:10.1186/s12913-016-1531-2</u>
- 21. Holthe T, Halvorsrud L, Thorstensen E, et al. Community Health Care Workers' Experiences on Enacting Policy on Technology with Citizens with Mild Cognitive Impairment and Dementia; J Multidiscip Healthc; 2020;13;447-458. doi: 10.2147/JMDH.S246180.

- Huang W, Long H, Li J, et al. Delivery of public health services by community health workers (CHWs) in primary health care settings in China: a systematic review (1996-2016); Glob Health Res Policy; 2018 6(3);18. doi: 10.1186/s41256-018-0072-0.
- Possin KL, Merrilees J, Bonasera SJ, et al. Development of an adaptive, personalized, and scalable dementia care program: Early findings from the Care Ecosystem; PLoS Med [Internet]; 2017 14(3); e1002260. <u>doi:10.1371/journal. pmed.1002260.</u>
- 24. Pozet A, Lejeune C, Bonnet M, et al. Evaluation of efficacy and efficiency of a pragmatic intervention by a social worker to support informal caregivers of elderly patients (The ICE Study): study protocol for a randomized controlled trial; Trials; 2016; 17(1);531. doi: 10.1186/s13063-016-1622-8.
- Wolff JL, Freedman VA, Mulcahy JF, et al. Family Caregivers' Experiences With Health Care Workers in the Care of Older Adults With Activity Limitations; JAMA Netw Open [Internet]; 2020;3(1); e1919866. doi:10.1001/jamanet workopen.2019.19866.
- Lethin C, Leino-Kilpi H, Roe B, et al. RightTimePlaceCare Consortium. Formal support for informal caregivers to older persons with dementia through the course of the disease: an exploratory, cross-sectional study; BMC Geriatr; 2016;(16);32. doi: 10.1186/s12877-016-0210-9.
- Yang S, Zhang Y, Xie S, et al. Predictors of Perceived Social Support for Patients with Dementia: A Mixed-Methods Study; Clin Interv Aging; 2020;(15);595-607. doi: 10.2147/CIA.S249223.
- Van Ginneken N, Chin WY, Lim YC, et al. Primary-level worker interventions for the care of people living with mental disorders and distress in low- and middle-income countries; Cochrane Database Syst Rev [Internet]; 2021;8(8); CD009149. doi: 10.1002/14651858.CD009149 .pub3.
- Philip RR, Venables E, Manima A. et al. "Small small interventions, big big roles"- a qualitative study of patient, care-giver and health-care worker experiences of a palliative care programme in Kerala, India; BMC Palliat Care [Internet];2019;18(16); <u>https://doi.org/10.1186/s12904-019-0400-2.</u>
- Schneider H, Okello D, Lehmann U. The global pendulum swing towards community health workers in low- and middle-income countries: a scoping review of trends, geographical distribution and programmatic orientations, 2005 to 2014; Hum Resour Health; 2016;14(1);65. doi: 10.1186/s12960-016-0163-2.
- Goh AMY, Gaffy E, Hallam B, et al. An update on dementia training programmes in home and community care; Curr Opin Psychiatry; 2018 (5);417-423. doi: 10.1097/YCO.00000000000438.
- Laporte UF, Heinrich S, Wolf-Ostermann K, et al. Caregiver burden assessed in dementia care networks in Germany: findings from the DemNet-D study baseline; Aging Ment Health; 2017 (9);926-937. doi: 10.1080/13607863.2016 .1181713.

- Zwerling JL, Cohen JA, Verghese J. Dementia and caregiver stress; Neurodegener. Dis. Manag; 2016; 6(2);69-72. doi: 10.2217/nmt-2015-0007.
- Cross-Barnet C, Ruiz, S, Skillman M, et al. Higher Quality at Lower Cost: Community Health Worker Interventions in the Health Care Innovation Awards. J Health Dispar Res Pract; 2018;11(2);150-164.
- 35. Biello S, Tomolo A, Abraham C, et al. A qualitative evaluation of caregiver support services offered at the Atlanta veterans affairs health care system. Prev Chronic Dis [Internet]; 2019;16:E24. doi: 10.5888/pcd16.180156.
- 36. Scott K, Beckham SW, Gross M. et al. What do we know about community-based health worker programs? A systematic review of existing reviews on community health workers; Hum Resour Health; 2018; 16(1);39. <u>doi:</u> 10.1186/s12960-018-0304-x
- Orgeta V, Mukadam N, Sommerlad A, et al. The Lancet Commission on Dementia Prevention, Intervention, and Care: a call for action; Ir J Psychol Med;2018;36(2);85-88. doi: 10.1017/ipm.2018.4.
- Patel V, Saxena S, Lund C, et al. The Lancet Commission on global mental health and sustainable development; The Lancet; 2018;392(10157);1553-1598. doi: 10.1016/S0140-6736(18)31612-X
- Gitlin LN, Marx K, Stanley IH, et al. Translation of an Evidence-Based Dementia Care Intervention for Publicly Funded Homecare Programs; Gerontologist; 2015; 55(2); 210-26. doi: 10.1093/geront/gnu123.
- Hayhoe B, Cowling T, Pillutla V, et al. Integrating a nationally scaled workforce of community health workers in primary care: a modelling study; J. R. Soc. Med. 2018; 111(12); 453-461. doi: 10.1177/0141076818803443
- Parkinson M, Carr SM, Rushmer R, et al. Investigating what works to support family carers of people with dementia: a rapid realist review; J Public Health (Oxf); 2017;39(4);290-301. doi: 10.1093/pubmed/fdw100.
- Mattap SM, Mohan D, McGrattan AM, et al. The economic burden of dementia in low- and middle-income countries (LMICs): a systematic review; BMJ Glob Health [Internet];2022;7(4):e007409. doi: 10.1136/bmjgh-2021-007409.
- Lord K, Livingston G, Robertson S. et al. How people with dementia and their families decide about moving to a care home and support their needs: development of a decision aid, a qualitative study; BMC Geriatr; 2016; 68. doi:10.1186/s12877-016-0242-1.
- Sarriot E, Morrow M, Langston A, et al. A causal loop analysis of the sustainability of integrated community case management in Rwanda; Soc Sci Med; 2015; 131;147-55. doi: 10.1016/j.socscimed.2015.03.014.
- Schneider H, Okello D, Lehmann U. The global pendulum swing towards community health workers in low- and middle-income countries: a scoping review of trends, geographical distribution and programmatic orientations, 2005 to 2014; Hum Resour Health; 2016; 14;65. doi:10.1186/s12960-016-0163-2

- Schneider H, Maleka N. Patterns of authorship on community health workers in low-and-middle-income countries: an analysis of publications (2012–2016); BMJ Global Health [Internet]; 2018; 3:e000797. doi: 10.1136/bmjgh-2018-000797.
- Tulenko K, Møgedal S, Afzal MM, et al. Community health workers for universal health-care coverage: from fragmentation to synergy; Bull World Health Organ; 2013; 91(11);847-52. doi: 10.2471/BLT.13.118745.
- Aghajanian A, Mehryar AH, Ahmadnia S, et al. Impact of rural health development programme in the Islamic Republic of Iran on rural-urban disparities in health indicators; East Mediterr Health J; 2007;13(6);1466-75. doi: 10.26719/2007.13.6.1466.
- Kumar CS, George S, Kallivayalil RA. Towards a dementiafriendly India; Indian J. Psychol. Med; 2019; 41(5); 476–481. doi:10.4103/ijpsym.ijpsym 25 19

- Varghese B, Abraham M, Kumar CTS. Memory clinics- a model for dementia care. IP Indian J Neurosci. 2020; 4(2): 48–51. doi.org/10.18231/2455-8451.2018.0013
- Nulkar A, Paralikar V, Juvekar S. Dementia in India a call for action. Journal of Global Health Reports. 2019; 3:e2019078. doi:10.29392/joghr.3.e2019078.
- 52. Examining Models of Dementia Care: Final Report [internet]. Available from ASPE Reports; US; [cited on August 30 2022]; Available from; <u>https://aspe.hhs.gov/reports/examining-models-dementiacare-final-report-0</u>
- Heintz, H., Monette, P., Epstein-Lubow, G., et al. Emerging Collaborative Care Models for Dementia Care in the Primary Care Setting: A Narrative Review; Am J Geriatr Psychiatry; 2020; 28(3); 320-330. doi: 10.1016/j.jagp.2019.07.015



Creative expressions

Heart

Yatish Nath

ISSN 2397-5628 Journal of Geriatric Care and Research 2022, Vol 9, No 2



Heart is often linked with emotions and feelings; and it does get influenced by them. Cardiac illnesses are major causes morbidity and mortality in old age. Ischemic heart disease has been considered one of the most common reasons of death globally. There are many cardiovascual risk factors such as hypertension, diabetes, hyperlipidaemia, obesity, smoking, excessive alcohol use and drug use. Healthy life style, appropriate diet, regular physical exercise, stress management etc. may help to reduce the cardiovascular risk.

This is a mixed media art piece that portrays heart in a distinctive manner.

Artist Information: Yatish Nath, A-level student, Westcliff High School for Boys, Kenilworth Gardens, Westcliff-on-Sea, Southend-on-Sea, Westcliff-on-Sea SS0 0BP, UK; Email: <u>yatishn2018@gmail.com</u>

Correspondence: Yatish Nath, Westcliff High School for Boys, Kenilworth Gardens, Westcliff-on-Sea, Southend-on-Sea, Westcliff-on-Sea SS0 0BP, UK; Email: yatishn2018@gmail.com

Competing interests: None

Received: 25 August 2022; Accepted: 26 August 2022

Copyright © 2022 Yatish Nath

Citation: Nath Y.Heart Journal of Geriatric Care and Research, 2022, 9, 2: 57.



Creative expressions

Beauty of Barra

Subha Das



Acrylic on canvas. This is a picture from a small island situated in a cluster of islands named "Outer Hebrides". It is situated on West Coast of Scotland, in the middle of Atlantic ocean. The natural beauty is beyond anybody's imagination. Tourists visit this place throughout summer months.

Artist Information: Subha Das, MD, FRCOG, Dundee, Scotland Correspondence: Subha Das, MD, FRCOG, Dundee, Scotland Email: <u>drsubhadas@gmail.com</u>

ISSN 2397-5628

2022, Vol 9, No 2

Journal of Geriatric Care and Research

Copyright © 2022 Subha Das

Citation: Das S. Beauty of Barra Journal of Geriatric Care and Research, 2022, 9, 2: 58.



Information

Exploring the concerns of older adults and their support needs: reflections from the Healthy Ageing 2022 International Conference

Namita Rath

GeriCaRe (Geriatric Care and Research Organisation) organised the Healthy Ageing 2022 International Conference on 11 December 2022 as a webinar. This conference allows older adults, their family caregivers, and professionals to participate. This year the format of webinar focused on the interaction of the older adults and their caregivers, with a panel of experts. The attendees asked their questions (some of them before the conferences through an online form, others during the conference).

This free to attend conference brought together professionals and general public in one stage for sharing of practical knowledge based on recent advances and developing clarity about the issues affecting the older adults.

Expert panel

The expert panel of the conference included the following professionals.

Dr Tushar Kanti Das, MD, Consultant Physician, and Director Medical Services, TRL Krosaki Refractories, Jharsuguda.

Dr Prasanta Kumar Mohapatra, MD, Senior Consultant, Psychiatry, District Headquarter Hospital, Cuttack.

Dr. Sushree Parida, MD, DM, Senior Consultant, Oncology, Apollo Hospital, Bilaspur.

Dr. Minerva Samal. MD Senior Consultant, Medicine, Capital Hospital, Bhubaneswar.

Dr Barun Kumar Patel, MBBS, DNB, Consultant, Orthopaedics, TRL Krosaki Hospital Belpahar.

Ms Sunita Sahoo, MSc, Chief Clinical Dietician, Apollo Hospital, Bhubaneswar

Dr Tejaswini Sahoo, BPT, MPT, Physiotherapist, TRL Krosaki Hospital, Belpahar

Dr Chandan Kumar Ray Mohapatra, MS, MCh, Associate Professor, Cardiovascular Surgery, KIIMS, Bhubaneswar

Prof Nilamadhab Kar, MD, FRCPsych, Consultant Psychiatrist, UK

Discussion topics

Major topics of discussion included Healthy Ageing - an Introduction by Dr TK Das, Cancers in elderly: focus on prevention, early identification and management by Dr S Parida, Mental health concerns in elderly by Dr PK Mohapatra. musculoskeletal pain and remedies, by Dr BK Patel, nutrition in elderly Ms S Sahoo, exercise and physiotherapy by Ms T Sahoo. Common physical illnesses and their management by Dr M Samal, psychosocial concerns, stress management, prevention of dementia by Dr N Kar. Informaton about various other topics such as elder abuse, psychosocial and legal support available for this were provided.

Box 1	: Concerns of older adults and their caregivers
1.	How to know one has become 'old'/ 'elderly'
2.	Common physical and mental health issues in
	elderly
3.	Prevention of heart attack
4.	Supporting a person having heart attack by
	family members
5.	Diabetes medications, management
6.	Diet in diabetes
7.	Management of obesity
8.	Issues with prostrate (hypertrophy)
9.	Depression in eldery
10.	Prevention of dementia
11.	Behavioural and psychological problems in
	persons with dementia - and how to manage
	them at home
12.	Parkinsonism, care of patients with
	parkingsonisim at home
13.	Stroke prevention, care of stroke patients with
	disabilities at home
14.	Health precautions for elderly, especilly for
	those with cardiac conditions
15.	General health care of the elderly
16.	Cost of care, especially hospital care
17.	Posititve (good) health of the elderly
18.	Execercises for elderly
19.	Yoga for elderly
20.	How to manage stress
21.	Manageing loneliness

22. Contol of mind

A summary of the frequently asked concerns from the older adults and their caregivers are given in Box 1. These topics provide an window the the common issues faced by the older adults and their caregivers, and suggest the need for further interventioal work and research in these areas.

Healthy Ageing Yearbook for 2022 was released at the conference. This contains useful information for general public on various age related health and psychosocial topics. This e-Book has been circulated to the attendees and is available free for general public.

There was active participation from the audiences. It was interesting to note that most of the attendees were elderly who could join using the technology themselves or with the help of their family caregivers. There was some Internet connectivity problems in the rural areas. A participatory platform with opportunity of interaction between professionals and general public was highly appreciated. During and after the conference, feedback from the attendees suggested that the it was an appropriate method to provide practical information, that were need-based (being asked by the attendees) and provided by the experts in local language, in a non-jargon way, understandable by the general public. Most attendees have commented that the conference has been highly useful for them. There were requests and suggestions for topics to be covered in the future conferences. More frequent webinars were requested too. The feedbacks from the attendees following the conference have been highly positive.

Panini Samman, 2022

For the year 2022, Dr Bana Bihari Mishra, MS, MCh, received the prestigious Panini Samman from Geriatric Care and Research Organisation, (GeriCaRe) for his work in supporting cardiac health of older adults in the state of Odisha, India. This award is being given during the

celebration of International Day for Older Persons. Dr Mishra is a well-known Cardiac Surgeon in Odisha, India. He is an expert in Trans-catheter Aortic Valve Implantation (TAVI), with a special interest in Minimal Invasive Cardiac Surgery (MICS) and Mechanical Circulatory Support - Extracorporeal Membrane Oxygenation (MCS-ECMO). Dr Mishra has not only years of experience in multispecialty hospitals; he has set up many Cardiac Surgery Units in different hospitals in Odisha. His patients talk about his helpful nature, care and compassion. He is associated with various voluntary organisations. He follows a spiritual way of life.

Acknowledgement

The conference was supported by The Institute of Insight, United Kingdom; and Quality of Life Research and Development Foundation (QoLReF) India. Altima, INTAS provided technical support in conducting the webinar. GenX studios, Bhubaneswar helped in postproduction work on videos and hosting them online. Input from the attendees was the key for content development.

Author information: Namita Rath, MPhil, MBA, PhD, Associate Professor, Faculty of Management Studies, Sri Sri University, Sri Sri Vihar, Cuttack, Odisha, India, Email: <u>namita.r@srisriuniversity.edu.in</u>

Correspondence: Namita Rath, Associate Professor, Faculty of Management Studies, Sri Sri University, Sri Sri Vihar, Cuttack, Odisha, India, Email: <u>namita.r@srisriuniversity.edu.in</u>

Competing interests: None

Received: 14 December 2022; Revised: 24 December 2022; Accepted: 25 December 2022

Copyright © 2022 The Author(s). This is an open-access article distributed under the terms [CC BY-NC] which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Rath N. Exploring the concerns of older adults and their support needs: reflections from the Healthy Ageing 2022 International Conference. Journal of Geriatric Care and Research, 2022, 9, 2: 59-60.



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.

Qualitative research

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 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
- 3. Name of all the authors: (underline Last name)
- 4. Details of authors: academic degrees, professional position, institutional affiliations, professional address, email
- 5. Corresponding author: name, address, phone, e-mail and ORCID
- 6. Contributions of each author:
- 7. Word count for abstract:
- 8. Word count for the text (excluding references):
- 9. Number of tables: (total number of tables and figures should not be more than 10, preferably less than 5.)
- 10. Number of photographs/images (to be provided separately in high quality JPEG files):
- 11. Acknowledgement:
- 12. Competing interests:
- 13. Funding
- 14. Suggested Reviewers Up to 3, (not from authors' institution). Name, Position, Institution and Email

No identifiable details beyond this page.

Article Text pages

The article text pages do not contain any identifiable information, for a blind review. It should contain: Title of the article, Abstract and Key words (depending upon the article type) and the Text of the article. Please refer to article types for detail information. As a general rule, please have an Introduction and Conclusion subheadings whenever possible along with other required subheadings.

References

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.

4. Foley KM, Gelband H, editors. Improving palliative care for cancer [Internet]. Washington: National Academy Press; 2001 [cited 2002 Jul 9]. Available from: http://www.nap.edu/books/0309074029/html/.

5. Cancer-Pain.org [Internet]. New York: Association of Cancer Online Resources, Inc.; c2000-01 [updated 2002 May 16; cited 2002 Jul 9]. Available from: http://www.cancer-pain.org/.

Personal communications need written authorisation (email is acceptable); they should not be included in the reference list. Unpublished doctoral theses may be cited (please state department or faculty, university and degree). No other citation of unpublished work, including unpublished conference presentations, is permissible. Further information about the references can be availed from http://www.nlm.nih.gov/bsd/uniform_requirements .html

Tables

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 selfexplanatory. 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.

Figures

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.

For ease of formatting please use the available article template.

Abbreviations, units and footnotes

All abbreviations must be spelt out on first usage and only widely recognized abbreviations will be permitted. Abbreviations usage should be consistent throughout the article. Use abbreviations sparingly; consider using one if it is repeated more than three times.

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.

Copyright

Copyright of all the published papers is retained by the authors.

Contributors form

On acceptance of the paper for publication, all authors should submit a contributor's form to the Geriatric Care and Research Organisation (GeriCaRe) regarding adherence to publication ethics.

Article Processing Fee

There is no submission, processing or publication fee at present for papers published in the *JGCR*.

Open access

All papers published in the *JGCR* are freely available for the readers.



GeriCaRe

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-longlearning 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.

It prepares and distributes public education materials. Journal of Geriatric Care and Research (JGCR) is one of its flagship endeavours. The JGCR is free to readers and authors and is distributed worldwide.

Donate

GeriCaRe is supported by its members, a number of experts and volunteers who contribute their time and expertise freely.

GeriCaRe requires financial support to carry on its activities. It depends upon the contribution from the individuals and organisations. You will be able to help by sponsorships.

You can sponsor any of the activities, e.g. Health Camps, Health Care Initiatives, Journal of Geriatric Care and Research, or Research and Development Projects.

If you are a business organisation, you can support GeriCaRe as one of your corporate social responsibility (CSR) activities. Considering the wide ranging issues that GeriCaRe addresses you will be able find many reasons to support.

GeriCaRe ensures that all the contributions are best utilized for the cause they are donated for.

As a token of appreciation of your donation, GeriCaRe will send you the e-copies of JGCR. If requested it will also provide the donors an annual review of health with action plans for a chosen older adult, if the clinical details are shared.

Preferably, please consider setting up a direct debit at least yearly (or more frequently if you wish) which will help GeriCaRe in planning its activities; however onetime payments are also welcome. For payment instructions or further information on donation, please contact <u>org.gericare@gmail.com or jgcr.gericare@gmail.com</u>.



Geriatric Care and Research Organisation (GeriCaRe)

Journal of Geriatric Care and Research 2022, Volume 9, No 2