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YOU ARE INVITED TO JOIN US

We are Working to Protect the Rights and Social Welfare of the Elderly

Indian Gerontological Association (Registration No 212/ 1968) is an independent grassroots non-profit organization based in Jaipur (Rajasthan). Our efforts **empower** and **support** the underprivileged elderly in rural and urban communities.

We strive to **ensure social justice and welfare for people over 60**, focusing on those elders who are the most disadvantaged such as elderly women. We protect the civil liberties of elderly citizens as a part of the **struggle for individual rights and social progress** in India.

Currently, the elderly community comprises approximately 10% of the total population of India. This number will increase to nearly 25% within the next twenty years. **Neglected and abandoned by society and sometimes their own families, elders are increasingly subject to conditions of disease and poverty.** They lack access to health care, and often face serious discrimination as well as physical and emotional abuse.

As a public interest group, **we work for and with the elderly to protect their rights and access to a better quality of life.** We seek to both empower and serve by working directly with rural communities. By facilitating the growth of citizen's groups, raising public awareness on aging, promoting public action and participation, and advocating public policy changes, Indian Gerontological Association hopes to alter the current trends in elder relations for the better.

Our work includes

- Community Centers for the Elderly that Offer Communal Support and Interaction
- Training on Legal Rights by Offering the Elderly Practical Knowledge on Their Rights
- Use of various forms of media to Raise Public Awareness on Elder Rights
- Counselling and Helping elderly to Relieve Psychological Stress and Depression
- Public Awareness Raising to Promote Public Action for Helping Disadvantaged Elderly
- Field Study of Rural Areas to Analyze Challenges Faced by Aging Rural Population

Our plan of action includes

- Campaign for Elder Rights
- Campaign Against Elder Abuse especially toward Elderly Women
- Training of Social Workers and Caregivers
- Capacity Building of Civil Servants or organizations Working on Aging
- Research & Publication
- Donate Freely to the Cause of the Seniors citizens.
- Donate generously to support the cause of senior citizens.

Contents

NEWS & VIEWS

SCOPE OF THE JOURNAL

Indian Journal of Gerontology (ISSN : 0971-4189) is a peer-reviewed and UGC Approved Journal, and is indexed by - the Indian Ctation Index, Google Scholar, CNKI Scholar, EBSCO Discovery, and UGC Group 1. Started in the year 1969, is the first in India, and 18th in the world. It publishes papers related to the Biological aspects of Human ageing, animal ageing, and ageing of plants. It also publishes papers on geriatrics, geriatric nursing, and geriatric physiotherapy (Clinical aspects). The social aspects of ageing cover, Sociology, Social work, Anthropology, Psychology, Economics, Demography, and other Social Sciences.

BOOK REVIEW

Sharma, K.L., & Hirst, S. (Eds.), (2025). Challenges in gerontological care. Rawat Publications.

Many older adults live with multiple chronic conditions, which require health care, but how best to address these experiences for them often remains elusive. Long wait times and limited access to specialised geriatric services can compound these issues. Communication barriers, such as medical jargon, hearing and vision loss, or cognitive decline, make it harder for them to understand their options and participate in decision-making.

This collectin of 27 articles from the Indian Journal of Gerontology explores the diversity and healthcare challenges faced by older adults worldwide, highlighting evidence-based strategies for promoting healthy ageing and working with cognitively impaired seniors, which I found particularly valuable.

It is easy erading but requires time. I needed the time to reflect on what I was reading, and to ask myself, "So what?" – what have I learned? What else do I need to know? Interesting questions as I continue to work with older adults and those important to them. It is a text that I highly recommend to colleagues working in both the health and human service fields, as well as to those who wish to stay informed as our population of older adults increases worldwide.

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Physiotherapy Rehabilitation for Urinary Incontinence in a Geriatric Prostate Cancer Patient : A Case Report

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ABSTRACT

This study presents a case of an elderly male aged 61 years, diagnosed with prostate cancer, undergoing radiation therapy, prostatectomy 2 years ago, with urinary incontinence. The outcome measures, the PERFECT Scheme and the Pad-Test, were analysed pre- and post-treatment. The Pad-Test is a simple and effective way to measure the severity of urinary incontinence. It involves measuring the weight of a urine-soaked pad before and after a specific activity to determine the amount of urine lost. The PERFECT Scheme, on the other hand, is a comprehensive assessment tool that evaluates the functionality of the pelvic floor muscles. The protocol provided to the participant was extensive, encompassing patient education on pelvic floor muscle function and the importance of Kegel exercises, a regimen of Kegel exercises to strengthen the pelvic floor muscles, and lower limb strengthening exercises to improve overall muscle strength and coordination. In addition,

Interferential therapy, a type of electrical stimulation, was used to stimulate the pelvic floor muscles. This therapy is known to improve muscle strength and endurance, making it a valuable component of the rehabilitation protocol. All of these components were administered over 5 weeks. This comprehensive protocol was designed to address all aspects of the patient's condition, providing reassurance to both the patient and the healthcare professionals involved. The research resulted in a significant and inspiring decrease in daily urinary frequency (from 17 to 8) and the removal of the catheter, indicating a substantial reduction in urinary leakage. In the PERFECT scheme, there was a notable increase in the phases: P increased from 3 to 4; E rose from 5 to 10; R increased from 6 to 10; and F = from 4 to 10. In the Pad-Test, there was a substantial reduction in urinary loss from 6 grams to 2 grams. After therapy, it was concluded that implementing the protocol and conducting physical therapy follow-up in this study improved pelvic floor muscle contraction, strength, and resistance, thereby leading to recovery of urinary continence. This finding underscores the effectiveness of the rehabilitation protocol, providing valuable insights for healthcare professionals and inspiring hope for similar patients.

Keywords : Urinary Incontinence,Interferential therapy, Kegel's Exercise, Prostate Cancer.

According to the International Continence Society, urinary incontinence is defined as involuntary urine leakage objectively diagnosed and associated with other social and hygienic issues (Rajkowska-Labon *et al.*). After a radical prostatectomy, stress incontinence, urge incontinence, and mixed incontinence are the most prevalent forms of urine incontinence (Ibid.). The European Association of Urology recommends both non-invasive and invasive (surgical) methods for treating these dysfunctions (Ibid.). Male incontinence has

not gotten much attention because it is often perceived as a female health issue (Lima *et al*.). However, male UI has gained attention from physiotherapists in recent years, in part because of advances in survivability rates following prostate cancer treatments and longer lifespans (Lima *et al.*). Particularly in cases of moderately severe incontinence and shortly after symptom onset of a physiotherapy is recommended (Rajkowska-Labon *et al*.). Over the years, several techniques have been investigated to treat post-prostatectomy urinary incontinence (UI). Numerous studies in male patients have demonstrated the effectiveness of Kegel exercises, which were first described in 1948 as a treatment for postpartum incontinence (Kegel, 1948; Terzoni *et al*. 2015). However, adopting healthy behaviours and learning how to manage one's care can help improve recovery and reduce treatment side effects (Jurys *et al*.,). As a therapeutic option, pelvic floor muscle (PFM) awareness involves educating patients and their families about proper bowel and voiding habits (Nilssen *et al*.,). It is crucial to have both the abdominal muscles and the PFM relaxed during voiding and defecation as they work in tandem (Ladi-Seyedian *et al*.,). Children's lower urinary tract (LUT) dysfunction and persistent constipation have shown encouraging results when neuromodulation using Interferential therapy on the pelvic floor and abdominal wall is used (Ibid.).

The cause of post-prostatectomy incontinence is considered to be multifactorial, including sphincter dysfunction, detrusor muscle overactivity, low bladder compliance, and post-surgical changes in sensation. Other commonly cited causes include: urethral sphincter deficiency or laxity, and the destruction of facial and ligamentous support of the bladder neck and PFM through surgical damage, causing SUI (Nahon, I.,).

Method

This is a single-case study, classified as both descriptive and exploratory, of a quantitative nature. The participant, a 61-year-old male, is a farmer by occupation and weighs 74 kgs. His occupation, which involves significant physical activity, including lifting and bending,

may have contributed to his pelvic floor muscle weakness. Repetitive strain and pressure on the pelvic floor muscles from these activities may have led to their gradual weakening. He was diagnosed with prostate cancer and is in the 3rd session of radiotherapy. He underwent radical prostatectomy in 2022 (2 years back), and soon afterwards, he presented urinary incontinence that has persented to the present day. His journey, from diagnosis to the present, is a testament to the challenges faced by many prostate cancer patients, and his resilience in the face of these challenges is truly inspiring.

To evaluate pelvic floor muscle function, the PERFECT scheme was used. The PERFECT scheme verifies in 5 phases the functionality of the pelvic floor muscles using digital rectal touch and voice commands to request the desired actions:

- "P" (Power) checks the strength of muscle contraction using the modified Oxford scale of 0 to 4 (0 - a without contraction and 4 - maximum force lasting more than five seconds);
- "E" (hardens) checks the resistance through the contraction sustaining time, with the maximum time evaluated being 10 seconds;
- "R" (Repetitions) checks repetitions of sustained contractions for 5 seconds with a 4-second rest interval between contractions, counting up to 10 repetitions;
- "F" (Fast) checks the speed of the contractions maintained for 1 second each, counting up to 10 contractions;
- "ECT" (Every Contractions Timed) verifies which accessory muscles are activated when the MAP is contracted.

To quantify the loss of urine during activities of daily living, an absorbent test (Pad-Test) was performed using a geriatric absorbent. The absorbent's weight was measured before the test began, using an SF-400 electronic digital scale. The participant must drink a litre of water in fifteen minutes and rest for another thirty minutes. Then, perform a circuit of activities, such as walking, running, going up and down steps, squatting, repeatedly changing positions, lifting objects

from the floor and putting them down, coughing, and washing your hands under running water. The Pad-Test, a widely used and reliable measure, was chosen because it provides a comprehensive evaluation of the participant's urinary control across various activities, making it an effective indicator of treatment effectiveness. At the end of the sequence, the absorbent is weighed, and the difference in grams between the initial and final weights classifies urinary loss.

To evaluate lower limb muscle strengthening, manual muscle grading was used.

Lower limb muscle strengthening	**Position**	**Test**
Hip Flexors (Psoas Major and Iliacus)	The patient lies supine with the knee extended	The examiner applies resistance to the patient's thigh as the patient attempts to flex the hip.
Hip Extensors (Gluteus Maximus)	The patient stands leaning over a table, supported by the trunk, with one leg extended back.	The examiner supports the knee in flexion and asks the patient to lift the thigh away from the table.
Hip Abductors (Gluteus Medius and Minimus)	Patient lies on their side, with the test leg extended	The examiner applies resistance to the thigh as the patient attempts to abduct the hip (move it away from the midline).
Hip Adductors	Patient lies on their side, with the test leg extended	The examiner applies resistance to the thigh as the patient attempts to adduct (move towards the midline) the hip
Knee Extensors (Quadriceps)	The patient lies supine with the knee extended	The examiner applies resistance to the distal thigh as the patient attempts to extend the knee.
Knee Flexors (Hamstrings)	The patient lies prone with the knee flexed	The examiner applies resistance to the distal thigh as the patient attempts to flex the knee.

Ankle Dorsiflexors (Tibialis Anterior)	The patient sits with the foot off the edge of the table	The examiner applies resistance to the dorsum of the foot as the patient attempts to dorsiflex the ankle (pull the toes up)
Ankle Plantar flexors (Gastrocnemius and Soleus)	The patient sits with the foot off the edge of the table	The examiner applies resistance to the sole as the patient attempts to plantarflex the ankle (point the toes down)

Intervention

A protocol given to the participant was started with patient education, Interferential therapy,and perineal exercises, which consist of muscle training of the pelvic floor associated with lower limb strengthening exercises, performed 10 physiotherapy sessions twice a week for 5 weeks, with about 40 minutes each session, with weekly gradual progression of intervention.

- **First Week** – Interferential Therapy - applied pelvic Interferential therapy for 20 minutes at each treatment session. A 4-kHz carrier frequency and a beat frequency sweep covering 5-25 Hz, for a duration of 250 ms, repeated every 6 seconds, with adjustable amplitude (0-100 mA). Two rectangular self-adhesive (2.5 x 3.5 cm) electrodes, one from each channel, were bilaterally placed on the skin of the symphysis pubis, and two other electrodes from each channel were placed crosswise on the skin under the ischial tuberosity; with this approach, the current from each channel crosses along the pelvic floor and bladder. The intensity was increased until the patient reported a firm but comfortable level of sensory awareness. Maximum current intensity was used below the pain threshold. The patient tolerated the electrical stimulation well.
  - Supine: 20 quick contractions; 15 contractions sustained for 5 seconds; 20 quick contractions.
  - Straight Leg Raise without hold, Side lying hip Abduction.
- **Second Week** –Interferential Therapy - applied pelvic Interferential therapyfor 20 minutes at each treatment session. A 4-

kHz carrier frequency and a beat frequency sweep covering 5-25 Hz, for a duration of 250 ms, repeated every 6 seconds, with adjustable amplitude (0-100 mA). Two rectangular self-adhesive (2.5 x 3.5 cm) electrodes, one from each channel, were bilaterally placed on the skin of the symphysis pubis, and two other electrodes from each channel were placed crosswise on the skin under the ischial tuberosity; with this approach, the current from each channel crosses along the pelvic floor and bladder.The intensity was increased until the patient reported a firm but comfortable level of sensory awareness. Maximum current intensity was used below the pain threshold. The patient tolerated the electrical stimulation well.

- Supine: 30 quick contractions; 15 sustained contractions of 5 seconds' hold; 30 quick contractions.
- Pelvic bridging exercise by pressing a ball between the lower limbs, supported by the therapist.
- Side-lying hip abduction exercise with resistance using a half-kilo weight cuff.

• **Third Week** – Interferential Therapy - applied pelvic Interferential therapy for 30 minutes at each treatment session. A 4-kHz carrier frequency and a beat frequency sweep covering 5-25 Hz, for a duration of 250 ms, repeated every 6 seconds, with adjustable amplitude (0-100 mA). Two rectangular self-adhesive (2.5 x 3.5 cm) electrodes, one from each channel, were bilaterally placed on the skin of the symphysis pubis, and two other electrodes from each channel were placed crosswise on the skin under the ischial tuberosity; with this approach, the current from each channel crosses along the pelvic floor and bladder.The intensity was increased until the patient reported a firm but comfortable level of sensory awareness. Maximum current intensity was used below the pain threshold. The patient tolerated the electrical stimulation well.

- Supine: 40 quick contractions; 20 sustained contractions for 10 seconds; repeating another 40 quick contractions.
- Pelvic bridging exercises involve pressing a ball between the lower limbs.

- Semi-squat with your back against the wall.
- Side-lying hip abduction exercise with resistance using a 1 kg weight cuff.

• **Fourth week** – Interferential Therapy - applied pelvic Interferential therapy for 30 minutes at each treatment session. A 4-kHz carrier frequency and a beat frequency sweep covering 5-25 Hz, for a duration of 250 ms, repeated every 6 seconds, with adjustable amplitude (0-100 mA). Two rectangular self-adhesive (2.5 x 3.5 cm) electrodes, one from each channel, were bilaterally placed on the skin of the symphysis pubis, and two other electrodes from each channel were placed crosswise on the skin under the ischial tuberosity; with this approach, the current from each channel crosses along the pelvic floor and bladder.The intensity was increased until the patient reported a firm but comfortable level of sensory awareness. Maximum current intensity was used below the pain threshold. The patient tolerated the electrical stimulation well.

- Supine: 50 quick contractions, 30 sustained contractions for 15 seconds, repeating another 50 rapid contractions.
- Pelvic bridging exercises involve pressing a ball between the lower limbs.
- Dynamic quads exercise with resistance using a half-kilo weight cuff.
- Full squats with wall support.

• **Fifth Week -** Interferential Therapy - applied pelvic Interferential therapy for 30 minutes at each treatment session. A 4-kHz carrier frequency and a beat frequency sweep covering 5-25 Hz, for a duration of 250 ms, repeated every 6 seconds, with adjustable amplitude (0-100 mA). Two rectangular self-adhesive (2.5 x 3.5 cm) electrodes, one from each channel, were bilaterally placed on the skin of the symphysis pubis, and two other electrodes from each channel were placed crosswise on the skin under the ischial tuberosity; with this approach, the current from each channel crosses along the pelvic floor and bladder.The intensity was increased until the patient reported

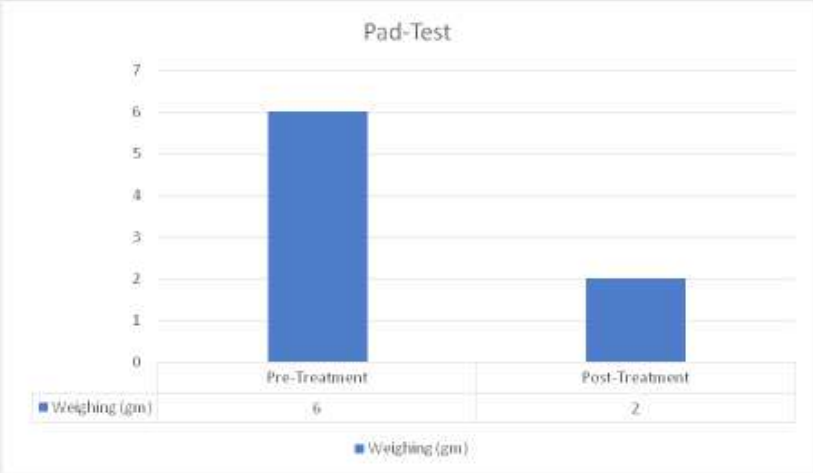
a firm but comfortable level of sensory awareness. Maximum current intensity was used below the pain threshold. The patient tolerated the electrical stimulation well.

- Supine: 50 quick contractions, 40 sustained contractions for 20 seconds, repeating another 50 quick contractions.
- Pelvic bridging exercises involve pressing a ball between the lower limbs.
- Full squats with therapist support.
- Dynamic quads exercise with resistance using a 1 kg weight cuff.
- Ambulation with walker.

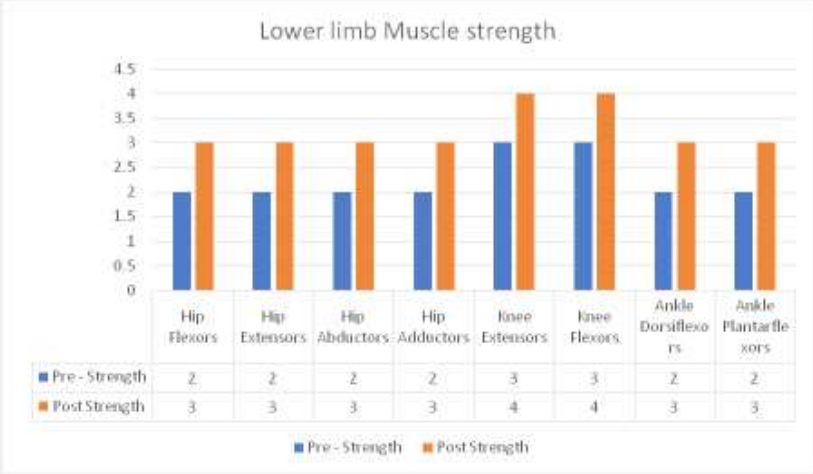
Result

Graph 1illustrates the evaluation of pelvic floor muscle function using the PERFECT method, with pre-protocol values of P = 3, E = 5, R = 6, and F = 4. Following the methodology, progress was made, resulting in the highest possible score for each phase reviewed: P = 4, E = 10, R = 10, F = 10.

Graph 2 shows urine loss assessed using the Pad-Test before and after the program.There was a reduction in urinary loss from 6 grams to 2 grams.



Graph 3 shows the assessment of lower limb muscle strengthening using the manual muscle strengthening grades before and after the protocol.There was an increase in the strength of the lower limbs.



Discussion

The present study aimed to apply the protocol of Interferential therapy and perineal exercises in urinary incontinence after radical prostatectomy for prostate cancer. The result shows the pelvic floor muscle function evaluation utilising the PERFECT method, with pre-protocol values of P = 3, E = 5, R = 6, F = 4. Following the

methodology, progress was made that resulted in the highest possible score for each phase reviewed, with P = 4, E = 10, R = 10, F = 10, the assessment of urinary loss using the Pad-Test before and after the protocol there was a reduction in the difference in urinary loss from 6 grams to 2 grams and the assessment of lower limb muscle strengthening using the manual muscle strengthening grades before and after the protocol there was an increase in strength of lower limb. Prostatectomy is among the primary surgical procedures that can lead to urinary incontinence (Lima *et al.,* 2020).

Hsu *et al.,* (2016) state that by tightening the urethra and increasing intra-urethral pressure as intra-abdominal pressure rises, pelvic floor muscle exercise improves urinary incontinence by enhancing muscle strength and endurance (Ibid.).

A bibliographic search by Arroyo Fernández *et al.*, (2015) found that a pelvic floor training program consisting of three series executions, comprising 10 repetitions per day, may be adequate to increase the continence rate following radical prostatectomy, according to the findings of an evaluation of the evidence regarding the impact of pelvic floor muscle training on urine incontinence (Ibid.).

Moore K.N. *et al.* (1999) evaluated Urinary incontinence following radical retropubic prostatectomy. They found that all groups experienced significant improvements in incontinence from the initial evaluation to the last pad test at 8 months post-procedure.

Ladi-Seyedian *et al*., (2020) evaluated the effectiveness of combining muscular workouts with pelvic floor interferential (IF) electrical stimulation in treating bladder bowel dysfunction (BBD) in children. The results showed that this combination is a safe and efficient way to treat BBD in children (Ibid.).

Stefano Terzoni *et al*., (2016) present the outcomes of a rehabilitation programme based on PFMT and provide comprehensive information about the exercises patients complete, including body postures, repetition counts, treatment times of day, and characteristics that require attention during training (Terzoni *et al.,*).

Santos *et al.,* (2016) carried out a bibliographic review based on controlled clinical trials in which,during the perioperative phase following radical prostatectomy, physiotherapy methods for strengthening the pelvic floor muscles were employed as treatment. According to the study, several strategies and interventions demonstrated encouraging outcomes in reducing postoperative urinary incontinence, primarily by accelerating healing and recovery or by mitigating symptoms.

Conclusion

Interferential Therapy and Kegelex ercises, combined with functional lower-limb exercises, were applied in the present study. The results showed a positive increase in the strength and resistance of pelvic floor muscle contractions, and consequently, an improvement in urinary continence, which was confirmed at the end of therapy.

Given that prostate cancer affects public health and that prostatectomized persons will experience urine incontinence, physiotherapists must monitor and treat the condition as soon as feasible.

References

Arroyo Fernández, R., García-Hermoso, A., Solera-Martínez, M., Martín Correa, M.T., Ferri Morales, A. y Martínez-Vizcaíno, V., (2015). Improvement of continence rate with pelvic floor muscle training post-prostatectomy: a meta-analysis of randomised controlled trials. *Urologia Internationalis, 94(2), pp.* 125-132.

Hsu, L.F., Liao, Y.M., Lai, F.C. and Tsai, P.S., 2016. Beneficial effects of biofeedback-assisted pelvic floor muscle training in patients with urinary incontinence after radical prostatectomy: A systematic review and meta-analysis. *International Journal of Nursing Studies*, *60*, pp.99-111.

Jurys, T., Kupilas, A., Rajwa, P., Bryniarski, P. and Burzyñski, B., (2022). Role of preoperative patient education among prostate cancer patients treated by radical prostatectomy. *Central European Journal of Urology*, *75*(3), p.272.

Kegel, A.H., (1948). Progressive resistance exercise in the functional

restoration of the perinel muscles, *Am J. Obstet Gynecol* 56(2) : 328-48

Ladi-Seyedian, S.S., Sharifi-Rad, L. and Kajbafzadeh, A.M., (2020). Management of bladder bowel dysfunction in children by pelvic floor interferential electrical stimulation and muscle exercises: a randomised clinical trial. *Urology*, *144*, pp.182-187.

Lima, M.S.R., de Souza, S.L., Porto, R., Cirqueira, R.S.D.S., Teixeira, F.S. and de Souza, S.I., (2020). Physiotherapeutic Treatment of Urinary Incontinence after Radical Prostatectomy: Case Study *IJAERS* 2349-7(4)

Moore, K.N., Griffiths, D. and Hughton, A., (1999). Urinary incontinence after radical prostatectomy: a randomised controlled trial comparing pelvic muscle exercises with or without electrical stimulation. *BJU International, 83(1), pp.* 57-65.

Nahon, I. (2021). Physiotherapy management of incontinence in men. *Journal of Physiotherapy*. 1;67(2):87-94.

Nilssen, S.R., Mørkved, S., Overgård, M., Lydersen, S. and Angelsen, A., (2012). Does physiotherapist-guided pelvic floor muscle training increase the quality of life in patients after radical prostatectomy? A randomised clinical study. *Scandinavian Journal of Urology and Nephrology, 46(6), pp.* 397-404.

Rajkowska-Labon, E., Baku³a, S., Kucharzewski, M. and Œliwiñski, Z., (2014). Efficacy of physiotherapy for urinary incontinence following prostate cancer surgery. *BioMed Research International*, *2014*(1), p.785263.

Santos, A.G., de Almeida, N.A.D.S., Jorge, L.B., Xavier, S.S. and Latorre, G.S., (2016). Efetividade do exercício pélvico no perioperatório de prostatectomia radical: revisão de literatura. *Revista Brasileira em Promoção da Saúde*, *29*(1), pp.100-106.

Terzoni, S., Montanari, E., Mora, C., Ricci, C. and Destrebecq, A., (2015). Developing a rehabilitation programme for male urinary incontinence: detailed schemes and results on 122 patients. *International Journal of Urological Nursing*, *9*(3), pp.149-155.

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Exploring Ageism towards Older Adults in a Contemporary Tribal Society in India : A Case Study

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ABSTRACT

Population ageing, alongside growing socio-economic and long-term care challenges, has highlighted the issue of ageism towards older adults worldwide. Rapid modernisation is likely to affect relationships between younger and older populations, even in traditionally close-knit tribal societies. This study examines the ageist attitudes of individuals under 60 towards older adults, aiming to provide a nuanced understanding of ageism in the tribal culture of the Naga people in Northeastern India. Understanding this dynamic is particularly important as Naga society navigates the transition between traditionalism and modernity. The findings of this study, which reveal that lower educational attainment was associated with higher ageist attitudes and that co-residence with elderly family members did not significantly influence ageism, have significant implications for future interventions and research.

Addressing these knowledge gaps can support a healthier ageing process. Among the three dimensions of ageism measured by the FSA, antilocution—expressing negative stereotypes or making casual remarks about older adults—was the most commonly exhibited form of ageism.

Keywords : Population ageing, ageism, older adults, tribal society, Fraboni Scale of Ageism

With growing socio-economic and long-term care challenges at both macro and micro levels, population ageing has also highlighted how older adults, particularly those over 60, are perceived in society. Attitudes towards older adults—whether positive or negative—purely based on age are referred to as *ageism*. Although ageism in different forms has been an inherent part of human society, it was only after Butler (1969) introduced the concept—defining it as a form of prejudice or discrimination based on age, usually by one age group towards another, most often by younger people towards older people—that scholarly interest in this subject gained momentum and continues to hold significant importance. Later, scholars such as Iversen, Larsen and Solem (2009) expanded the concept of ageism by defining it as "negative or positive stereotypes, prejudice, or discrimination against (or to the benefit of) ageing people because of their chronological age or based on a perception of them being old or elderly."

Ageism explicitly directed towards older adults is often marked by predominant negative stereotypes, such as the belief that after reaching a certain age, older people are generally characterised as having poor physical and mental abilities, being physically unattractive, dependent, and unproductive. Conversely, older adults are also stereotyped as kind, wise, dependable, and happy (Palmore, 2005; Bugental & Hehman, 2007). Ageism is deeply rooted in our society (Butler, 2005). It is prevalent in nearly all aspects of life, including the workplace, healthcare, education, media, day-to-day interactions, and social policies (Dennis & Thomas, 2007; Sargent Cox, 2017). Beyond its presence, the intensity and effects of ageism have led it to be regarded as the third great "ism," following racism and sexism (Palmore, 1999).

However, ageism differs from other forms of discrimination on two grounds: first, it is a disadvantage that, given time, everyone will eventually experience, and second, it is deeply embedded in culture (Calasanti, 2005).

Ageism, as observed, can be directed towards both the young and the old; however, the prejudice against older adults warrants greater attention due to its higher prevalence. Research has highlighted that the challenges associated with ageing do not diminish with time for the elderly (Butler, 2005; Iversen, Larsen & Solem, 2009). Given its significant impact on the rapidly growing older population in both developed and developing countries, this study aims to explore ageism within the context of the tribal community of the Nagas in north-eastern India, where cultural practices remain deeply rooted in traditional norms and values.

Societal Change and Ageism towards Older People

Ageism toward older adults has generally been attributed to two main factors: demographic and cultural settings. However, cultural influence—shaped significantly by societal change—has been observed to play a particularly significant role in fostering ageist attitudes toward older people (Marques *et al.,* 2020; Ng & Lim-Soh, 2021). In fact, ageism is often embedded within cultural values and social beliefs, making it prevalent across most societies (Choolayil & Putran, 2020; Bergeron & Lagacé, 2021).

As modern societies undergo profound structural transformations, young people's perceptions of older adults are shifting more negatively, and older adults appear to be losing their social status within society (Ayalon & Tesch-Römer, 2018). Even in traditionally close-knit tribal communities—long known for their strong intergenerational bonds—older adults are increasingly faccing unfavourable attitudes (Toppo, 2000). Irrespective of cultural context, the modernisation of society and the expansion of the older demographic seem to make ageist attitudes from younger people toward older adults inevitable. Even societies that generally hold older people in high regard cannot entirely divest themselves of ageist perceptions and attitudes (North & Fiske, 2015).

The modernisation of society, characterised by rapid technological change, has significantly widened the knowledge and skill gap between older adults and tech-savvy younger generations. Additionally, rapid urbanisation—leading to rural-to-urban migration among young people—and changes in traditional family structures, such as the breakdown of intergenerational co-residence, have further contributed to a decline in intergenerational interactions. This decline has, in turn, been linked to a higher incidence of ageism toward older adults among younger cohorts (Smith *et al.,* 2016; Choolayil & Putran, 2020).

The evolution of society and its impact on culture is a near-universal phenomenon, and tribal communities are no exception. Tribal communities in the country are undergoing significant societal changes driven by both endogenous and exogenous factors. Many are being transformed through the spread of modern formal education, religion, and the conscious efforts of the government in areas such as transportation and communication, urbanisation, healthcare, and social welfare programmes (Das, 1962). Since the country's independence, transformation within tribal societies has been observed in changes in occupational structure across generations, economic status in terms of wealth and income, religion, political stance, and overall ways of life (Xaxa, 1999). The processes of industrialisation and globalisation have also brought about both positive and negative cultural changes among tribal communities (Bhattacharyya, 2021). As such, it is worthwhile to explore the nature and extent of ageism towards older people in rapidly changing contemporary tribal societies.

Correlates and Dimensions of Ageism

As outlined above, in addition to societal and cultural attributes, socio-demographic factors such as age, gender, education, marital status, and ethnicity have been found to correlate significantly with ageist attitudes towards older adults. Regarding age, variations in ageism often yield mixed results. Several empirical studies indicate that individuals in the youngest cohort—typically 30 years of age and below—tend to exhibit higher levels of ageism than older individuals (Rupp *et al.,* 2005; Hofmeister-Tóth, 2021). These findings are consistent with the observation that younger individuals frequently display ageist attitudes, primarily attributable to their limited knowledge

of the ageing process (Failde Garrido *et al.,* 2019). Conversely, other studies have identified a reverse trend, in which older adults exhibit greater ageism than their younger and middle-aged counterparts (Allen *et al.,* 2023).

Gender has also been identified as a significant determinant in shaping ageist orientations. Evidence suggests that men are generally more ageist than women, a disparity frequently attributed to the higher levels of empathy women are perceived to demonstrate towards older populations (Hofmeister-Tóth, 2021; Rupp *et al.,*2005). Similarly, educational attainment has emerged as an important demographic factor associated with ageist attitudes. Individuals with graduate level qualifications or lower are more likely to hold ageist views than those with higher educational attainment (Bilim & Kutlu, 2020).

The association between marital status and ageism, however, remains inconclusive. Existing research indicates a lack of consensus, as marital status has not been extensively examined as a correlating factor (Allen *et al*., 2023). Furthermore, additional determinants—including place of residence, as well as psychological and behavioural variables such as fear of death and anxiety regarding ageing—have been reported to exhibit a positive association with ageism (Marques *et al.,* 2020; Ha & Kim, 2021).

Social determinants such as living arrangements, co-residence with older adults, and the frequency of intergenerational interactions have been consistently identified as significant factors shaping ageist attitudes among younger populations. In addition to educational attainment, intergenerational contact has been recognised as a critical intervention strategy for mitigating ageism directed toward older individuals (Burnes *et al.*, 2019). Empirical evidence demonstrates that younger individuals who have resided with their grandparents (Choolayil & Putran, 2020), as well as those who engage in sustained intergenerational contact with grandparents or other older adults, are more likely to exhibit favorable perceptions of ageing and to hold more positive attitudes toward older people (Kwong, 2022; Liao, Zhuoga, & Chen, 2023).

This body of evidence suggests that intergenerational interactions mediate perceptions of older adults by fostering empathy, mutual understanding, and recognition of ageing as a normative process rather

than a decline-oriented stage of life. Regular contact with older adults may counteract negative stereotypes by providing opportunities for younger individuals to witness older people's active participation, resilience, and continued social contributions. Consequently, intergenerational engagement not only reduces ageist perceptions at an individual level but may also serve as a broader societal mechanism to challenge structural ageism and promote intergenerational solidarity.

Beyond socio-demographic correlates, ageism has been conceptualised as a multidimensional construct encompassing antilocution, avoidance, and discrimination, as delineated in the Fraboni Scale of Ageism, which was adopted in the present study. Across diverse social and cultural contexts, avoidance and stereotype-related dimensions of ageism have consistently emerged as prevalent patterns. Empirical evidence, including studies by Bodner and Lazar (2008), Bodner *et al.,* (2012), and Intrieri and Dunterman (2019), indicates that younger individuals, particularly men, exhibit greater avoidance based ageism toward older adults. Conversely, owing to their involvement in caregiving roles, women are less likely to exhibit avoidance or stereotypical manifestations of ageism toward older populations.

Building on the premises discussed, this study explores ageism toward older adults among individuals under 60 in Nagaland, a tribal state in India's North-Eastern region. The Naga people are renowned for their strong kinship ties and robust family system, with respect for elders deeply ingrained in their cultural norms. However, contemporary Naga society has experienced significant changes through formal education, the spread of Christianity, and increased rural-to-urban migration (Nagi, 2008).

Socio-economic shifts include the emergence of nuclear families, smaller family sizes, greater longevity, and the physical separation of parents from adult children, alongside modernisation and evolving values, particularly among younger generations. As of 2021, the older population (60 years and above) constituted approximately 8.32% of Nagaland's total population (Rajan *et al*., 1999). Amid a growing ageing population, shrinking family sizes, and urban migration, it is crucial to examine whether traditional respect for elders is giving way to perceptions of older adults as dependent or redundant in an increasingly techno-centric society. This study examines variations in ageist attitudes among younger

cohorts, considering socio-demographic factors such as age, gender, marital status, education, and co-residence with older adults. It also examines the multiple dimensions of ageism that may be present in the study area.

Method

The present study is based on cross-sectional primary data collected via an online survey administered to 220 respondents, aged 12-59 years. To address the research objectives, respondents were purposively drawn from various Naga tribes residing across the state of Nagaland in the North-Eastern region of India. For analytical purposes, the sample was categorised into three life-stage cohorts: 12–27 years, 28–43 years, and 44–59 years. In addition to age, other socio-demographic characteristics such as gender, marital status, educational attainment, and current co-residence with older adults were recorded and assessed. Participation in the survey was entirely voluntary, and anonymity was strictly maintained. The purpose of the study was clearly communicated to all respondents prior to obtaining informed consent.

To examine ageist attitudes towards older adults among younger cohorts, the study employed a 4-point Likert scale adapted from the Fraboni Scale of Ageism (Fraboni, Saltstone, & Hughes, 1990). The instrument consisted of 29 items grouped into three subscales: Antilocution (10 items), Avoidance (10 items), and Discrimination (9 items). Response options were coded as 1 (Strongly disagree), 2 (Disagree), 3 (Agree), and 4 (Strongly agree). Items reflecting positive attitudes were reverse-coded during the analysis. Each respondent's scores across all items were aggregated, yielding a possible range of 29 to 116, with higher scores indicating stronger ageist tendencies towards older adults.

The internal consistency of the Fraboni Scale of Ageism (FSA) was assessed using Cronbach's alpha, which yielded a coefficient value of 0.85, indicating good reliability and confirming that the items consistently measure the construct of ageism. Both descriptive statistics and inferential statistical tests were employed to explore the levels and correlates of ageism across the selected socio-demographic variables. All statistical analyses were performed using SPSS version 20.

Result and discussion

The descriptive statistics and ageism scores across different socio-demographic characteristics of the respondents are given in Table 1. Of the 220 respondents, the majority were female, in the 12-27 age group, unmarried, and had a postgraduate or higher education qualification.

Table 1

Socio-Demographic Characteristics and Ageism Scores based on FSA (N = 220)

Characteristics	n	Percentage	Mean Score	SD	Median	IQR(Q1-Q3)
Gender						
Female	125	56.82	61.04	8.79	61	55-66
Male	95	43.18	61.19	6.88	62	57-66
Age Groups						
12 to 27	130	59.09	61.68	8.57	62	57-66
28 to 43	54	24.55	58.91	7.56	59	53-65
44 to 59	36	16.36	62.33	5.78	63	60-66
Education						
Graduate and below	77	35.00	62.90	8.16	63	59-67
Master's and above	143	65.00	60.14	7.78	60	56-65
Marital Status						
Unmarried	182	82.73	61.34	8.14	62	57-66
Married	38	17.27	60.00	7.35	61	56-66*
Overall	**220**	**100**	**61.10**	**8.01**	**62**	**57-66**

**percentiles rounded to the nearest whole number*

Based on the FSA, which ranges from 29 to 116, the overall mean ageism score of the sample was 61.10 (*SD* = 8.01). The overall median score was 62 (*IQR* = 57–66), indicating a moderate level of ageist attitudes towards older people, as it falls below the midpoint of the scale. Comparatively higher levels of variation in ageism scores were observed across age groups and educational qualifications. Among the three age groups, the ageism score was highest among respondents aged 44–59 years (*Mdn* = 63) and lowest among those aged 28–43

years (*Mdn* = 59). Respondents with an education level of graduate and below had higher ageism scores (*Mdn* = 63) compared to those with a master's degree and above (*Mdn* = 60). Differences in ageism levels across gender and marital status, however, were not statistically significant.

Since ageism scores were not normally distributed, non-parametric inferential tests were employed. Results indicated that differences in ageism scores across age groups, gender, and marital status were not statistically significant. However, the Mann–Whitney U test revealed a statistically significant difference in ageism scores between respondents with graduate and below qualifications (*Mdn* = 63, *n* = 77) and those with a master's degree and above (*Mdn* = 60, *n* = 143), *U* = 4385.50, *Z* = –2.49, *p* = .013. The mean ranks were 125.05 and 102.67, respectively, with an effect size of *r* = .17, suggesting that respondents with higher educational attainment were significantly less likely to hold ageist attitudes towards older people than those with lower levels of education.

In addition to socio-demographic factors, the study also examined whether co-residence with elderly individuals was associated with differences in ageism scores, as measured by the FSA (see Table 2). The status of current co-residence was analysed separately, as living with older people has often been associated with fostering lower levels of ageist attitudes among younger individuals.

Table 2

Co-residence with the elderly and Corresponding Ageism Score (N=220)

Currently co-residing with the elderly	n	Percentage	Mean Score	SD	Median	IQR(Q1 -Q3)
No	104	47.27	61.66	8.60	62	56-67*
Yes	116	52.73	60.60	7.44	62	57-65
Overall	**220**	**100**	**61.10**	**8.01**	**62**	**57-66**

**percentiles rounded to the nearest whole number*

Of the 220 respondents, 52.73% reported living in contrast, while 47.27% did not. The mean ageism score was slightly lower for those co-residing with elderly individuals (*M* = 60.60) than for those not co-

residing (M = 61.66), although the median score was identical (Mdn = 62).

Shapiro–Wilk tests indicated non-normality for both groups : W = 0.925, p < 0.001 (non-co-residing), W = 0.973, p < 0.05 (co-residing). Levene's test confirmed homogeneity of variance, p = .58. A Mann–Whitney U test showed no significant difference in ageism scores between non-co-residing (Mdn = 62, n = 104) and co-residing respondents (Mdn = 62, n = 116), U = 5714.00, Z = –.673, p = .50, r = .04.

These results indicate that co-residence with elderly family members does not significantly influence ageist attitudes, suggesting that such attitudes are shaped more by broader social factors than by household living arrangements.

Table 3

Significance of difference in ageism scores by currently co-residing with the elderly (N=220)

Variable	Test	Test statistics	p-value	Mean ranks
Currently co-residing with	Mann-	U = 5714.00,	.50	
elderly	Whitney U	Z = -.673		
No				113.55
Yes				107.77

The overall ageism score based on the FSA suggests that ageist attitudes towards older people exist among younger cohorts, but at a moderate level. Some variation in ageism scores was observed across socio-demographic characteristics; however, only the difference in educational level was statistically significant. Respondents with a master's degree or higher exhibited less ageist attitudes towards older adults than those with a graduate degree or lower. This finding is consistent with existing literature, which suggests that higher education is often associated with greater exposure to diverse perspectives, stronger critical thinking skills, and increased awareness of social inequalities, all of which may contribute to lower levels of ageism. Co-residence with elderly family members, however, did not appear to significantly influence ageist attitudes, indicating that interpersonal contact within the household alone may not be sufficient to challenge or reshape broader social stereotypes about ageing.

Dimensions of Ageism

Table 4

Per-item Mean Score of Ageism Dimensions by socio-demographic characteristics (N=220)

Characteristics	*n*	Antilocution	Avoidance	Discrimination
		Mean Score (*SD*)	Mean Score (*SD*)	Mean Score (*SD*)
Age				
12 to 27	130	2.42 (.36)	1.91 (.39)	2.04 (.29)
28 to 43	54	2.32 (.34)	1.76 (.35)	2.01 (.28)
44 to 59	36	2.40 (.28)	1.93 (.25)	2.12 (.24)
Gender				
Female	125	2.39 (.37)	1.87 (.40)	2.04 (.30)
Male	95	2.40 (.30)	1.88 (.33)	2.05 (.27)
Education				
Graduate and below	77	2.46 (.36)	1.96 (.35)	2.08 (.30)
Master's and above	143	2.36 (.33)	1.83 (.37)	2.03 (.28)
Marital status				
Unmarried	182	2.41 (.34)	1.88 (.38)	2.06 (.29)
Married	38	2.31 (.33)	1.83 (.33)	2.04 (.25)
Currently co-residing with elderly.				
No	104	2.41 (.37)	1.90 (.40)	2.07 (.30)
Yes	116	2.38 (.32)	1.86 (.34)	2.03 (.28)
Overall	**220**	**2.39 (.34)**	**1.88 (.37)**	**2.05 (.29)**

Since the Fraboni Scale of Ageism (FSA) is a multidimensional construct, the present study further examined the specific dimensions in which ageism primarily manifests in Naga society, namely antilocution, avoidance, and discrimination. To facilitate comparison across these dimensions, per-item mean ageism scores were used instead of overall subscale scores, as the subscales differ in the total number of items. For instance, the antilocution subscale contains 10 items, avoidance contains 10 items, and discrimination contains 9 items. Following this approach, the per-item mean scores reflect the average response on the 4-point Likert scale, thereby providing a standardised measure of attitude for each form of ageism.

As shown in Table 4, out of the possible score range of 1 to 4 on the 4-point Likert scale of the FSA, the overall per-item mean ageism scores for antilocution (M = 2.39, SD = 0.34) and discrimination (M = 2.05, SD = 0.29) were comparatively higher than those for avoidance (M = 1.88, SD = 0.37). This suggests that, although moderate, ageism towards older people was expressed primarily in the forms of antilocution and discrimination, while avoidance was the least expressed dimension.

Across socio-demographic characteristics, age-group Comparisons revealed that antilocution scores were highest among the youngest respondents (12–27 years) and lowest among the middle-aged group (28–43 years). In contrast, avoidance and discrimination scores were higher among the oldest group (44–59 years). Gender comparisons indicated that males reported slightly higher antilocution scores than females, while no notable differences were observed in avoidance and discrimination. Respondents with lower educational qualifications (graduate and below) reported higher scores across all three forms of ageism, consistently exceeding the overall mean, compared to those with master's degrees or higher. Similarly, unmarried respondents reported higher mean scores across all dimensions of ageism, with the difference being most evident in antilocution. Finally, respondents not co-residing with elderly family members reported higher per-item ageism scores across all three dimensions compared to those who lived with elderly individuals in the same household.

Based on the above information, it can be observed that, among the respondents, the antilocution form of ageism consistently scored higher than other dimensions, such as discrimination and avoidance, across all selected socio-demographic characteristics, and co-residence with elderly individuals. However, differences in per-item mean ageism scores, relative to the overall mean scores, were more evident across age groups and levels of educational qualification.

The predominance of antilocution suggests that ageism among younger cohorts is most frequently expressed through negative stereotypes, casual remarks, or jokes directed at older people, rather than through overt avoidance or direct discriminatory behaviour. This finding may reflect the subtle and socially normalised ways in which

ageist attitudes are reproduced in everyday interactions. In contrast, avoidance and discrimination require more deliberate behavioural choices, which may be less socially acceptable and therefore less frequently reported.

Conclusion

The present study examined ageism towards older adults in contemporary Naga society using the Fraboni Scale of Ageism (FSA). Overall, ageist attitudes were present among younger cohorts but at a moderate level. Ageism scores varied across socio-demographic characteristics, with educational attainment emerging as the only significant factor: respondents with postgraduate-level education or higher exhibited lower ageist attitudes than those with a graduate degree or below. Co-residence with elderly family members did not significantly influence ageist attitudes, suggesting that household contact alone may not be sufficient to reduce ageism, which appears to be embedded in broader social norms.

Analysis of the FSA's subdimensions revealed that antilocution—the expression of negative stereotypes, jokes, or casual remarks about older adults—was the most prevalent form of ageism. Discrimination was moderately expressed, while avoidance was the least reported dimension. Age differences were evident: younger respondents (12–27 years) reported higher antilocution scores, whereas older respondents (44–59 years) exhibited slightly higher avoidance and discrimination scores. Lower education levels and unmarried status were also associated with higher ageism scores across all dimensions.

These findings indicate that ageist attitudes in Naga society are largely subtle and socially normalised, rather than overtly discriminatory or avoidant. The results highlight the importance of promoting education and awareness to challenge stereotypes and foster more positive intergenerational attitudes.

While this study provides an initial understanding of ageism in a tribal context, future research should expand sample diversity, incorporate intersectional analyses, and develop culturally and regionally appropriate measures of ageism, as the FSA was originally designed for Western contexts. Such efforts will enable a more nuanced

understanding of ageism and support interventions tailored to tribal societies facing the challenges of population ageing.

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References

Allen, J. O., Elias, L. K., & Greenwood, J. C. (2022). Differences and Disparities in Ageism Affecting Older US Adults: A Review. *Current Epidemiology Reports*, *10*(*1*), 17–32.

Ayalon, L., & Tesch-Römer, L. (2018). Introduction to the Section: Ageism - Concept and Origins. In Liat Ayalon and Clemens Tesch-Romer (Eds.), *Contemporary Perspectives on Ageism*. (pp. 1–10). Springer Open.

Bergeron, C.D., & Lagacé, M. (2021). On the Meaning of Ageing and Ageism: Why Culture Matters. *University of Toronto Quarterly*. *90*(*2*), 140–154.

Bhattacharyya, S. (2021). Transformation of Tribal People in India: Various Factors. *International Journal for Multidisciplinary Research*. *3*(*1*), 118–123.

Bilim, I. O., & Kutlu, F. Y. (2021). The psychometric properties, confirmatory factor analysis, and cut-off value for the Fraboni Scale of Ageism (FSA) in a sampling of healthcare workers. *Perspectives in Psychiatric Care*, 57(1), 9-19.

Bodner, E., & Lazar, A. (2008). Ageism among Israeli students: Structure and demographic influences. *International Psychogeriatrics,* 20(5), 1046–1058.

Bodner, E., Bergman, Y. S., & Cohen-Fridel, S. (2012). Different Dimensions of Ageist Attitudes among Men and Women: A Multigenerational Perspective. *International Psychogeriatrics, 24*(*6*), 895–901.

Bugental, D. B., & Hehman, J. A. (2007). Ageism: A Review of Research and Policy Implications. *Social Issues and Policy Review*. *1*(*1*), 173–216.

Burnes, D., Sheppard, C., Henderson Jr, C. R., Wassel, M., Cope, R., Barber, C., & Pillemer, K. (2019). Interventions to Reduce Ageism Against Older Adults: A Systematic Review and Meta-Analysis. *American Journal of Public Health, 109*(*8*), 1–9.

Butler, R. N. (1969). Age-ism: Another Form of Bigotry. *The Gerontologist*, *9*, 243–246.

Butler, R. N. (2005). Ageism: Looking Back Over My Shoulder. *Generations: Journal of the American Society on Ageing*. *29*(*3*), 84–86.

Calasanti, T. (2005). Ageism, Gravity, and Gender. *Generations: Journal of the American Society on Ageing*. *29*(*3*), 8–12.

Choolayil, A.C., &Putran, L. (2020). Ageism among Undergraduate Students: Do Grandparents Make a Difference? *Indian Journal of Gerontology*. *34*(*3*), 333–342.

Das, T.C. (1962). Nature and Extent of Social Change in Tribal Society of Eastern India. *Sociological Bulletin*. *11*(*112*), 221–238.

Dennis, H. & Thomas, K. (2007). Ageism in the Workplace. *Generations: Journal of the American Society on Ageing*. *31*(*1*), 84–89.

Failde Garrido, J.M.F., Conde, M.D.D., Vázquez, M.A.V., Soriano, L.R., & Rodríguez, L.A. (2019). The Perspective of different Age groups regarding Old age and Ageing in highly aged contexts. *The Social Science Journal*. *58*(*1*), 77–90.

Fraboni, M., Saltstone, R., & Hughes, S. (1990). The Fraboni Scale of Ageism. *Canadian Journal on Ageing*. *9*(*1*), 56–66.

Ha, J. & Kim, J. (2021). Ageism and the Factors Affecting Ageism among Korean Nursing Students: A Cross-Sectional Study. *Int. J. of Environ. Res. Public Health*, *18*, 1798.

Hofmeister-Tóth, Á., Neulinger, Á., & Debreceni, J. (2021). Measuring Discrimination Against Older People Applying the Fraboni Scale of Ageism. *Information Switzerland*, *12*(*11*), Article 458.

Intrieri, R. C., & Dunterman, R. A. (2019*).* Gender differences across the Ageing Semantic Differential and the Fraboni Scale of Ageism. *Innovation in Aging, 3*(Suppl. 1), 81–82.

Iversen, T.N., Larsen, L., & Solem, P. E. (2009). A Conceptual Analysis of Ageism. *Nordic Psychology*, *61*(*3*), 4–22.

Kwong, A. N. L. (2022). Knowledge of intergenerational contact to combat ageism towards older people. In A. Klimczuk (Ed.), *Social aspects of ageing: Selected challenges, analyses, and solutions*. IntechOpen.

Liao, T., Zhuoga, C., & Chen, X. (2023). Contact with grandparents and young people's explicit and implicit attitudes toward older adults. *BMC Psychology*, 11(1), Article 289.

Marques, S., Mariano, J., Mendonca, J., De Tavernier, W., Hess, M., Naegele, L., Peixeiro, F., & Martins, D. (2020). Determinants of Ageism against Older Adults: A Systematic Review. *Int. J. of Environ. Res. Public Health.17*, 2560.

Minichiello, V., Browne, J., & Kendig, H. (2000). Perceptions and consequences of ageism: Views of older people. *Ageing & Society, 20*(*3*), 253–278.

Nagi, K. (2008). Changes in the Naga Family. In Michael Oppitz (Ed.), *Naga Identities: Changing Local Cultures in the North East of India*. (pp. 111-115). Snoeck Publishers.

Nelson, T./ D. (2011). *Ageism:* The Strange Case of Prejudice against the older you. In R./ L. Wiener & S./ L. Willborn (Eds.), *Disability and aging discrimination: Perspectives in law and psychology* (pp./ 37–47). Springer.

Ng, R., & Lim-Soh, J.W. (2021). Ageism Linked to Culture, Not Demographics: Evidence from an 8-Billion-Word Corpus across 20 Countries. *Journals of Gerontology: Social Sciences*. *76*(*9*), 1791-1798.

North, M.S., & Fiske, S.T. (2015). Modern Attitudes Toward Older Adults in the Ageing World: A Cross-Cultural Meta-Analysis. *Psychological Bulletin*. *141*(*5*), 993–1021.

Palmore, E. (1999). *Ageism: Negative and Positive*, 2nd Edition. Springer Publishing Company.

Palmore, E. (2005). Three Decades of Research on Ageism. *Journal of the American Society on Ageing*. *29*(*3*), 87–90.

Rajan, S., Irudaya, U.S., Mishra, P., & Sarma, S., (1999). *India's Elderly: Burden or Challenge*. Sage Publications Pvt. Ltd.

Rupp, D. E., Vodanovich, S. J., &Credé, M. (2005). The multidimensional nature of ageism: Construct validity and group differences. *The Journal of Social Psychology*, *145*(*3*), 335–362.

Sargent Cox, K. (2017). Ageism : We are our own worst enemy. *International Psychogeriatrics, 29*(*1*), 1–8.

Smith, M.L., Bergeron, C.D., Cowart, C., Ahn, S., Towne, S.D., Ory, M.G., Menn, M.A., & Chaney, J.D. (2016). Factors Associated with Ageist Attitudes among College Students. *Geriatrics & Gerontology International*. *17*(*10*), 1698-1706.

Toppo, S. (2000). Ageing and the Aged in the Tribal Cultures. *Indian Anthropologist*. *30*(*1*), 65–71.

Xaxa, V. (1999). Transformation of Tribes in India: Terms of Discourse. *Economic and Political Weekly*. *34*(*24*), 1519-1524.

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Social Support Status of the Elderly Population in Urban and Rural Areas of Lucknow District

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ABSTRACT

Social support, a crucial social determinant of health, significantly influences on the well-being of individuals, particularly the elderly. This observational cross-sectional study rigorously assessed and compared the social support status of 200 randomly selected elderly individuals aged 60 years and above in both urban and rural areas of Lucknow. The data, collected using a pretested semi-structured interview schedule and the Multidimensional Scale of Perceived Social Support (MSPSS, Zimet et al., 1988), were analysed using statistical software. The results, which showed that 13 (6.5%) participants had low social support, 42 (21%) had moderate support, and 145 (72.5%) had high social support, underscore the importance of promoting intergenerational activities, establishing and reinforcing community-based social platforms, and integrating

social support into comprehensive geriatric assessments to ensure healthy and supportive ageing for the elderly population. These findings not only contribute to the field of gerontology but also provide valuable insights into the levels of social support and the factors influencing support among the elderly. This information informs future research and policy development in this area, highlighting the potential impact of such studies and enlightening the audience on the current state of social support among the elderly in Lucknow.

Keywords : Elderly, Social Support, Geriatric Care, Socio-economic Status.

India's demographics are undergoing a dramatic shift, with an increasing proportion of the population becoming elderly. This trend presents both opportunities and challenges to the country's socioeconomic structure (Jana & Chattopadhyay, 2022). By 2025, there will be 158.7 million elderly people in India, and by 2050, they are expected to outnumber youngsters under the age of 14 (Dey *et al.,* 2012). Given the increased urbanisation and shifting family arrangements, this demographic shift requires a thorough understanding of the social support networks available to the elderly (Tiwari & Pandey, 2012). Increased female employment, increased internal and international mobility among the younger generation, and the rise of individualism are all having an impact on the traditional Indian family system, which has historically placed a strong emphasis on the duty of sons and their wives to care for their ageing parents (Evandrou *et al.,* 2017). Concerns over the elderly's well-being and quality of life are being raised by these changes, which are changing the type and availability of family assistance.

As people age, they often experience loneliness and despair due to fewer social connections and weakened familial ties, which causes them to withdraw from community involvement (Samal & Patel,

2021). However, it is important to note that social support can significantly mitigate these negative feelings. As people age, their circle of friends tends to shrink, making it more challenging for them to form new acquaintances and integrate into other social groups. For older adults, social support—including informational, practical, and emotional support—is essential to their health and well-being. Their overall level of life satisfaction, functional abilities, and physical and mental health can be affected by the quantity and quality of social assistance they receive.

Social support is defined by the American Psychological Association (APA) as the psychological and physical assistance that people give to one another in response to difficulties and needs. This support can take many different forms, including companionship, knowledge and guidance, material help, emotional support, and gratitude. Furthermore, according to Ganster and Victor (1988), the presence of others or the resources they provide before, during, and after a stressful event is important.

Engaging in social activities and integrating older persons into society are key components of healthy ageing. Social networks evolve as people progress through various life stages, and social interactions tend to decline with age. According to Umberson and Montez (2010) and Clegg *et al.* (2013), older people frequently experience feelings of social isolation and loneliness due to this decline in social connections. Compared to older people who are socially isolated, those who are socially active and receive enough support typically have better physical and mental health. Compared to men, women typically have more fulfilling relationships and larger support systems. Men usually receive less support from others and more from their spouses, although they both give and receive assistance (Antonucci & Akiyama, 1987).

Research indicates that children often provide instrumental support to elderly individuals, while close friends and family members typically offer emotional support. Social support and well-being are positively correlated, which helps shield senior citizens from the negative consequences of stressful events. This positive correlation between social support and well-being reassures us that by providing the necessary support, we can significantly enhance the quality of life for the elderly. There are two types of social support: perceived and actual. Additionally, it includes social integration, which fosters trust, self-worth, and emotional ties.

Everyone, including families, non-governmental organisations, and the government, should contribute to the welfare of the elderly to promote healthy ageing. To meet the needs of the ageing population and promote healthy ageing, we require increasingly specialised services over time. The accessible service package for the elderly must address and integrate social support, a crucial aspect of good ageing. This study aims to illuminate the social support status of the elderly in both urban and rural areas, highlighting the urgent need for such specialised services. By understanding the social support needs of the elderly, we can all play a part in ensuring their well-being and promoting healthy ageing.

Method

Sample

This observational cross-sectional study was conducted meticulously in both urban and rural areas of the Lucknow district (Uttar Pradesh). Among the eight blocks comprising the district, Sarojini Nagar Block was selected to represent the metropolitan area, while Mohanlalganj Block was chosen to represent the rural area. Two hundred male and female respondents, equal in number, aged 60 years and above, were selected using a purposive random sampling technique. This technique, which involves selecting participants based on specific criteria, was employed to ensure a representative sample. Only participants without any acute medical

conditions that significantly impaired their ability to participate in the study were included, further enhancing the study's representativeness.

Tools Used

a. A semi-structured interview schedule was used to collect information on the socio-demographic data of all the participants.

b. Tool to measure the social support status of respondents: MSPSS (Multidimensional Scale of Perceived Social Support scale, Zimet *et al.,*1988). MSPSS is a 12-item self-report questionnaire and a widely used reference for measuring an individual's perception of social support from three sources: family, friends, and significant others. Its widespread use and the fact that higher scores indicate greater perceived support lend the study greater validity. The scale employs a 7-point Likert scale for responses and has demonstrated good internal reliability and validity across diverse samples.

Procedure

Data collection was conducted using a pretested, semi-structured interview schedule and the Multidimensional Scale of Perceived Social Support (MSPSS). To ensure clarity and comprehension, the tools were administered in the local language, a choice made to respect and include the participants. Interviews were conducted through face-to-face interactions at the participants' residences. Before data collection, written informed consent was obtained from each participant. The principal investigator supervised the entire process to ensure the accuracy, completeness, and confidentiality of the data.

For the present study, ethical approval was obtained from the Institutional Ethics Committee, BBAU, Lucknow, on March 18, 2024 (Ethical approval number: 116/IEC/BBAU/2024). The study was conducted from April to August 2024.

Results and Discussion

Table 1

Socio-demographic data of the Elderly

Socio-demographic variables	Urbanf (%) (n=100)	Rural f (%) (n=100)
Age		
60-65yrs	64 (32)	45 (22.5)
65-70 Yrs	11 (5.5)	28 (14.0)
70-75 Yrs	24 (12.0)	15 (7.5)
Above 75 Yrs	1 (0.5)	12 (6.0)
Religion		
Hindu	86 (43.0)	98 (49.0)
Muslim	12 (6.0)	-
Sikh	2 (1.0)	2 (1.0)
Marital Status		
Married	86 (43.0)	75 (37.5)
Unmarried	1 (0.5)	1(0.5)
Divorcee	-	2(1.0)
Widow	13 (6.5)	22(11.0)
Type of Family		
Joint	63 (31.5)	53 (26.5)
Nuclear	26 (13.0)	25 (12.5)
Extended	11 (5.5)	22 (11.0)
Socio-economic Status		
Upper class	12 (6)	12 (6)
Upper Middle	56 (28)	49 (24.5)
Middle	11 (5.5)	5 (2.5)
Lower middle	12 (6)	27 (13.5)
Lower class	9 (4.5)	7 (3.5)
LivingArrangement		
Own Home	93 (46.5)	96 (48.0)
Rent	6 (3.0)	2 (1.0)
Others	1 (0.5)	2 (1.0)

No. of children		
Childless	1 (0.5)	3 (1.5)
1-3	41 (20.5)	49 (24.5)
4-6	44 (22.0)	26 (13.0)
More than 6	14 (7.0)	22 (11.0)

*NOTE: **p value*** of <0.05 considered as statistically significant*

Socio-demographic profile of the respondents. The numbers presented in Table 1 reveal that the majority (54.5%) of the elderly were in the 60-65 age group. Rural and urban participants were equally represented in the study. A majority (92%) of respondents identified as Hindu, and they were predominantly married (80.5%). Around half of the study population (58%) belonged to a joint family, and 94.5 per cent of them lived in their own homes, a reassuring statistic regarding their living conditions. Only 1.5 per cent of the elderly were living with their daughters' in-laws or with relatives. Around half (52.5%) of the respondents belonged to the Upper Middle class group, followed by 19.5 per cent from the Lower Middle class. A significant proportion (45%) of the respondents had 1-3 children. This was followed by 35 per cent of elderly respondents who had 4-6 children, and 18 per cent had more than six children. Only 2 per cent of the respondents were childless.

Social support status

Total scores on the MSPSS (Multidimensional Scale of Perceived Social Support) range from 12 to 84. The mean score has been used to categorise social support status into low, moderate, and high levels. The mean score ranged from 1 to 17.

Social support status of the elderly using the MSPSS questionnaire

In the study, 13 (6.5%) of the elderly had low social support, 42 (21%) had moderate social support, and 145 (72.5%) had high social support, as shown in Table 2.

MSPSS subscales

The distribution of the means and standard deviations of the three MSPSS subscales and the total scale is as follows, as shown in Table 3.

MSPSS questionnaire items

Family subscale : Around half of the elderly agreed that they shared their problems with their family, received emotional support, and that their family helped them with decision-making and assisted them.

Friends subscale : Approximately one-third of the elderly agreed that they have friends with whom they share joys and sorrows, and with whom they can discuss their problems. They count on these friends in times of trouble, and their friends try to help.

Special ones : A comforting statistic is that around half of the elderly agree that they have a special one who cares about their feelings, provides comfort, stays with them in times of need, and with whom they can share joys and sorrows.

Table 2

Social Support Status of Urban and Rural Elderly

MSPSS Subscale	MSPSS Scores	Urban	Rural	Total
Family	Low	9 (4.5)	11 (5.5)	20 (10)
	Moderate	7 (3.5)	17 (8.5)	24 (12)
	High	84 (42)	72 (36)	156 (78)
Friends	Low	9 (4.5)	9 (4.5)	18 (9)
	Moderate	39 (19.5)	51 (25.5)	90 (45)
	High	52 (26)	40 (20)	92 (46)
Special Ones	Low	4 (2)	6 (3)	11 (5.5)
	Moderate	14 (7)	17 (8.5)	31 (15.5)
	High	82 (41)	77 (38.5)	169 (84.5)
Total	Low	8 (4)	5 (2.5)	13 (6.5)
	Moderate	14 (7)	28 (14)	42 (21)
	High	78 (39)	67 (33.5)	145 (72.5)

Table 2 shows that the majority (72.5%) of respondents reported a high level of Social support from family (78%), friends (46%), and significant others (84.5%), as measured by the various subscales. This data also highlights significant differences in social support between urban and rural areas. A substantial proportion (39%) of urban respondents reported high levels of social support across all three categories of the MSPSS subscale, followed by moderate (7%) and low (4%). In contrast, among rural elderly, 33.5

per cent had a high level, 14 per cent had a moderate level, and 2.5 per cent had a lower level of social support. This information provides a comprehensive understanding of the variations in social support among different groups.

Table 3

Statistics of MSPSS Scale

	Range of Mean Scores	Average Mean		Standard Deviation	
		Urban	Rural	Urban	Rural
Family	**1-7**	5.72	5.49	1.59	1.57
Friends		5.12	4.47	1.64	1.17
Special Ones		5.66	5.65	1.32	1.25
Total		5.50	5.20	1.43	1.13

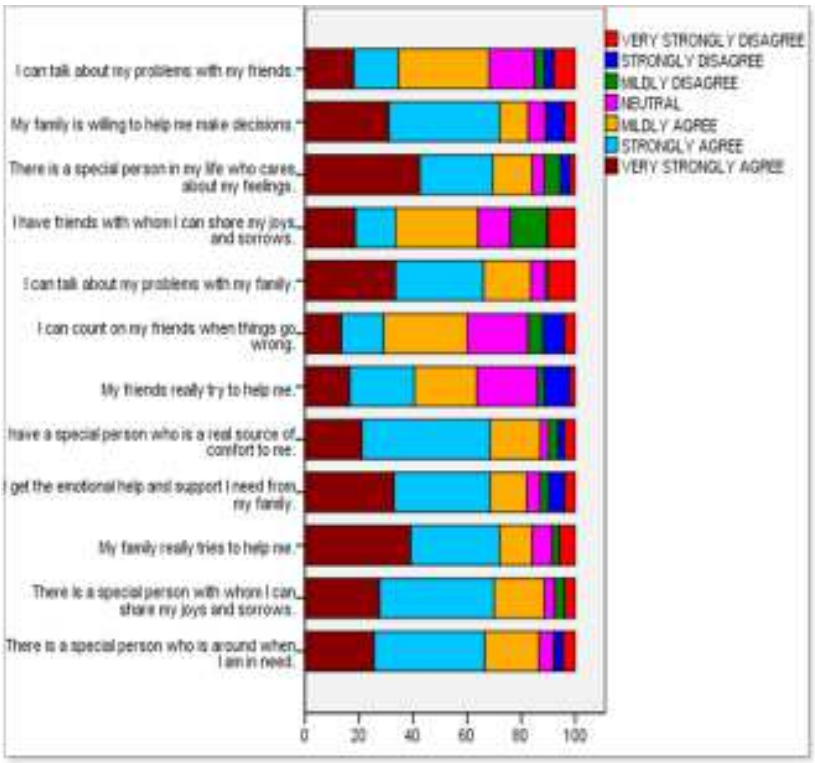

Figure 1: Survey on social support using MSPSS questionnaire (n = 200)

Table 4

Association of social support status with various socio-demographic factors (Multivariate Analysis- Ordinal Logistic Regression)

Socio-demographic variables	â-coefficient	Std. Error	aOr (LL-UL)	P
Age				
60-65yrs	0.05	0.54	1.05 (.36-3.02)	.933
65-70 Yrs	-0.18	0.55	.84 (.28-2.46)	.747
70-75 Yrs	-1.02	0.60	.36 (.11-1.17)	.091
Above 75 Yrs	0[a]	.	1	.
Religion				
Hindu	-1.33	0.81	.27 (.054-1.29)	.101
Muslim	2.63	1.13	13.91 (1.53-126.4)	.019*
Sikh	0[a]	.	1	.
Marital Status				
Married	0.52	0.35	1.69 (.85-3.38)	.140
Unmarried	2.92	1.92	18.55 (.43-791.26)	.127
Divorcee	-1.95	1.19	.14 (.02-1.47)	.102
Widow	0[a]	.	1	.
Type of Family				
Joint	3.31	0.54	27.34 (9.56-78.16)	.000*
Nuclear	3.19	0.58	24.17 (7.71-75.76)	.000*
Extended	0[a]	.	1	.
Socio-economic Status				
Upper class	3.29	0.70	26.74 (6.73-106.29)	.000*
Upper Middle	2.92	0.56	18.57 (6.21-55.52)	.000*
Middle	0.03	0.69	1.03 (.26-3.96)	.969
Lower middle	0.97	0.60	2.64 (.82-8.54)	.106
Lower class	Ref			
LivingArrangement				
Own Home	0.84	0.88	2.32 (.41-13.07)	.339
Rent	-0.25	1.03	.78 (.11-5.83)	.808
Others	0[a]	.	1	.

No. of children				
Childless	-0.54	0.94	1 (.09-3.72)	.570
1-3	0.86	0.40	2.37 (1.08-5.28)	.033*
4-6	-0.07	0.43	.93 (.40-2.16)	.866
More than 6	0[a]	.	1	

Note: * Significant

Predi Factors of social support

The results in Table 4 reveal that several socio-demographic variables are significantly associated with social support among elderly individuals. Notably, religion emerges as a powerful influence, with Muslim elderly individuals showing considerably higher odds of receiving high social support than Sikhs (aOR = 13.91, 95% CI: 1.53-126.4, P = 0.019). This finding offers a hopeful perspective on the potential of religious beliefs to foster strong social support networks among the elderly. Family structure also plays a significant role, with elderly living in joint families (aOR = 27.34, 95% CI: 9.56-78.16, P < 0.001) and nuclear families (aOR = 24.17, 95% CI: 7.71-75.76, P < 0.001) showing significantly higher odds of receiving high social support compared to those in extended families. Socio-economic status was another significant predictor, as the elderly from upper-class (aOR = 26.74, 95% CI: 6.73-106.29, P < 0.001) and upper-middle class (aOR = 18.57, 95% CI: 6.21-55.52, P < 0.001) backgrounds had substantially higher odds of receiving high social support compared to those from the lower class. Additionally, the elderly with 1-3 children had significantly higher odds of receiving high social support than those with more than six children (aOR = 2.37, 95% CI: 1.08-5.28, P = 0.033). While not statistically significant at the conventional threshold, the elderly aged 70-75 years showed a trend toward lower odds of receiving high social support compared to those aged 75 years or older (aOR = 0.36, 95% CI: 0.11-1.17, P = 0.091). Other variables, such as marital status and living arrangement, were not significantly associated with levels of social support among the Elderly in this study.

Discussion

Social support is defined as "a network of family, friends, neighbours, and community members that is available in times of need to give psychological, physical, and financial help" by the National Cancer Institute's Dictionary of Cancer Terms (National Cancer Institute Dictionary of Cancer Terms. Social Support., 2021). The perceptions of social support from friends, family, and special people were also incorporated into the current study tool. Social connection and emotional stability can be obtained through one's personal social network. It eases depression, improves mood, and gives life new purpose and hope (structural component of support). The second crucial factor is that engaging in community activities keeps one connected to society, boosting one's sense of value and self-esteem, and providing life pleasure (the functional dimension of support).

According to Table 4, religion, family structure, socioeconomic position, and the number of children were associated with social support. The findings are consistent with research by Singh & Kiran (2015) and Khandre (2023), which also found that higher educational attainment significantly affects the social well-being of older people, improves social support, and reduces their social isolation compared to older individuals without formal education (Gul *et al.*, 2018). Better job prospects, greater earnings, and a correspondingly better financial and social standing in adulthood are all associated with higher levels of education (White *et al.*, 2015).

Social support is considered a significant social predictor of health because it helps people meet their emotional and physical needs and reduces the negative impact of stressful situations on their quality of life. While friends and family can offer knowledge and appraisal assistance, family members can offer both emotional and practical support (such as cash, gifts, and services). Elderly people can go out with their companions more often than they can with their kids or other family members.

Based on the findings, the following recommendations may help the elderly to improve their social support status:

- A comprehensive geriatric assessment for the screening and strengthening of a component of preventative, promotional, and rehabilitative care for the elderly with social support;
- The creation of social platforms for the elderly or the strengthening of already-existing platforms like Kisan Manch and Bhajan Mandal to improve community participation
- The village-level participation in intergenerational activities, such as Kutumb Mela, to strengthen family bonds and build social and emotional support.

The use of proven research instruments and community-based evaluation of senior citizens were the study's strong points. However, the study has several drawbacks. First of all, self-reporting was unavoidable. Second, there is a possibility of recall bias. Third, the study excluded bedridden individuals. However, it opens the door to more opportunities to understand their viewpoint in the future.

Conclusion

The current study found that 72.5 per cent of the elderly had high social support, and this was significantly associated with religion, family type, socioeconomic status, and number of children. Elderly individuals living in joint or nuclear families, belonging to higher socioeconomic classes, and having fewer children tend to experience better social support. Those who remain confined to their homes should be encouraged to participate in intergenerational activities to foster family and community bonding. Provision and strengthening of social platforms for the elderly, along with engaging and health-conscious activities, can enhance their social well-being. Geriatric health assessments should include strategies to reinforce social support by actively involving family and friends.

References

Antonucci, T.& Akiyama, H. (1987). Social Networks in Adult Life and a Preliminary Examination of the Convoy Model. *Journal of Gerontology*. 42. 519–27. 10.1093/geronj/42.5.519

Clegg, A., Young, J., Iliffe, S., Rikkert, M. O., & Rockwood, K. (2013). Frailty in elderly people. *The Lancet*, *381*(9868), 752–762. https://doi.org/10.1016/s0140-6736(12)62167-9

Dey, S., Nambiar, D., Lakshmi, J. K., Sheikh, K., & Reddy, K.S. (2012). *Health of the Elderly in India: Challenges of Access and Affordability*. Ageing in Asia - NCBI Bookshelf. https://www.ncbi.nlm.nih.gov/books/NBK109208/

Evandrou, M., Falkingham, J. C., Qin, M., & Vlachantoni, A. (2017). Elder abuse as a risk factor for psychological distress among older adults in India: a cross-sectional study. *BMJ Open*, *7*(10), e017152. https://doi.org/10.1136/bmjopen-2017-017152

Ganster, D. C., & Victor, B. (1988). The impact of social support on mental and physical health. *The British Journal of Medical Psychology, 61 (Pt 1)*, 17–36. https://doi.org/10.1111/j.2044-8341.1988.tb02763.x

Jana, A., & Chattopadhyay, A. (2022). Prevalence and potential determinants of chronic disease among the elderly in India: Rural-urban perspectives. *PLoS ONE*, *17*(3), e0264937. https://doi.org/10.1371/journal.pone.0264937

National Cancer Institute Dictionary of Cancer Terms. Social Support. (2021);Available online: https://www.cancer.gov/publications/dictionaries/ cancer-terms/def/social-support

Samal, S., & Patel, S. (2021). Elderly care: A quest for their well-being under institutionalised and family-based care. *International Journal of Humanities and Social Science Research, 7*(1), 147–152. https://www.socialsciencejournal.in

Tiwari, S., & Pandey, N. (2012). Status and requirements of geriatric mental health services in India: An evidence-based commentary.

Indian Journal of Psychiatry, *54*(1), 8. https://doi.org/10.4103/0019-5545.94639

Umberson D., Montez J.K. (2010). Social relationships and health: A flashpoint for health policy. J. Health Soc. Behav; 51(Suppl. 1):S54–S66

Voitkane. S & Miezite. S (2006). The relationship of social support, psychological well-being, anxiety, depression, and student needs to self-esteem and assertiveness in first-year university students—19th International Conference on The First-Year Experience, Toronto, Ontario, Canada.

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). *Multidimensional Scale of Perceived Social Support (MSPSS)* [Database record]. *APA PsycTests*. https://doi.org/10.1037/t02380-000

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Unmasking Caring Masculinities: Exploring the Role of Men as Caregivers in Rural Assam

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ABSTRACT

Care-giving is increasingly becoming a shared obligation, transcending traditional gender roles, making it imperative to scrutinise the extent of men's involvement in the care-giving process. This study, with its significant findings, explores how men assume care-giving roles within their families, the extent to which their perceptions of gender-roles influence their care-giving experiences and how they reevaluate their sense of masculinity after taking on care-giving responsibilities. Twenty male caregivers from diverse age groups, and backgrounds, with varied experiences, were selected through snowball sampling in this study. These participants were interviewed to find out their experiences of caregiving.The collected data were thematically analysed, incorporating both deductive and inductive approaches. The narratives gathered in this study are organised into three major themes : caregivers' experiences, roles, responsibilities and

challenges. The findings demonstrate that caring is influenced by factors such as age, working status, and the nature of the relationship with the care recipient. Caring is a familial commitment that can be termed as kinship ties, marital ties, respect and trust.

Keywords : Men caregivers, Caring masculinity, Care-giving

Beginning at one's own doorstep and extending to the global scale, the process of caregiving invariably denotes the dominant participation of women. Notwithstanding changes in demography, social structure and norms, involvement of males as caregivers is also increasing; yet, the family caregiving remains predominantly a feminine activity (Baker *et al*., 2010). Besides, even if the care-giving process has been shifted from an informal to a professional setting, the equal participation of male caregivers remains a question. It is assumed that, as compared to males, females often approach caring differently, driven by their social and cultural upbringing. Forbye, theories of segregation of labour specify that as females usually stay at home, for them, it is natural/customary to take up the role as caregivers (Pinquart & Sorensen, 2006; Papastavrou, *et al.*, 2009; Lin, *et al.*, 2012)**.**

Man as Care-givers : A Review of Previous Research

Male participation in the caregiving process began to gain traction in the 1990s, primarily in Europe, the USA, and Canada (Dohner, *et al.*, 2007; Barker *et al.,* 2010). Despite the increasing male participation, male caregivers have not received the recognition they deserve, as researchers continue to focus primarily on female caregivers. The unique experiences of male caregivers are often overlooked (Russell, 2001; Baker, *et al.,* 2010; Chappell, *et al.,* 2015). However, studies on male caregivers suggest that they share the same sense of endearment, allegiance, and responsibility towards their older family members (Russell, 2001) notes that as women age, they become more self-possessed and their outlook becomes more instrumental, while men become more attentive and demonstrative. Women often perceive caring as a loss of independence, while men

view it as a means to achieve a sense of control (Barusch & Spaid, 1989; Milne & Hatzidimitriadou, 2003).

Leung *et al.* (2019) highlight four factors that have contributed to the increasing involvement of men in caregiving. First, societal changes, such as employment instability and increased participation of women in the labour force, have challenged the traditional role of men as the sole breadwinner caregivers roles (Crompton, 1999; Lewis, 2001). Secondly, men who do not conform to conventional gender role attributes and behaviours are less concerned about others' perceptions of their caregiver instead, they feel proud and secure in their decisions (Rochlen *et al.*, 2008). Thirdly, some working men take on caregiving tasks and engage in roles usually performed by women because they want to balance paid work and family commitments and are capable of transforming their gender relations both at home and in the workplace (Ranson, 2012). Fourthly, some men assume caregiving responsibilities for their parents, driven by filial obligations (Campbell & Carroll, 2007). Perceptions of gender roles and responses from family and friends influence men's acceptance of and satisfaction with their caregiver roles (Pleck, 1995; Rochlen *et al.,* 2008). Despite the increasing involvement of men in household work over the past decade found that gender remains a significant factor in care allocation leading the literature to overshadow the role of kinship. According to Calasanti (2003), as caring tasks are mostly feminine or gender-neutral, their value increases when performed by men (Ribeiro & Paúl, 2007).

The Context of the Study

In Assam, traditional caregiving responsibilities are predominantly shouldered by women. However, it is crucial to note that official data on caregivers in rural Assam is scarce, possibly due to a lack of research focus. The recent socio-economic and cultural changes are posing new challenges in the realm of caregiving. Drawing an existing literature and the researchers' personal experiences, it is evident that men's involvement in caregiving has received less attention. Stereotypes portraying men as unsuited for caregiving may also discourage their

involvement. However, evolving family structures are making caregiving a shared responsibility, transcending traditional gender roles. This not only necessitates a closer look at men's involvement in the caregiving process but also offers a potential for change in gender roles. Furthermore, despite the emergence of numerous formal care institutions in India, Assam lacks in both the number and quality of such establishments. In this context, this study's focus on men's adoption of caregiving roles within families, the influence of gender role perceptions on their experiences, and their reevaluation of masculinity post-caregiving involvement is of significant importance.

Method

The study aimed to provide a comprehensive understanding of men who assume elderly care-giving roles within the family context in the district of Sivasagar, Assam. The study selected 20 males from various age groups and backgrounds who had actively taken on caregiving roles for their elderly family members, using a snowball sampling technique to include them. Data was collected through in-depth interviews with these participants over a period of six months. These semi-structured interviews were flexible, allowing participants to share their caregiving experiences in ways that were most meaningful to them. The collected data was subjected to rigorous thematic analysis, employing both deductive and inductive approaches. The study prioritised the ethical principles of consent, confidentiality and the well-being of the participants. Before participating in the study, oral consent was obtained from all participants, who were also allowed to ask questions and address any concerns. Their identities are anonymised for confidentiality. This comprehensive research methodology was designed to facilitate a nuanced exploration of how men navigate caregiving roles within the family, shedding light on the influence of gender-role perceptions and the redefinition of masculinity in this evolving landscape.

Result and Discussion

Table No. 1 presents the socio-economic background of the participants, each with their unique characteristics. Notably, 50 per

cent of the participants belonged to the '30-39' age group, with 30 per cent having education up to upper-primary, and only 1 participant being a graduate. The marital status was equally unique, with 65 per cent unmarried and 35 per cent married. Nine per cent belonged to a nuclear family, while only 5 per cent were part of a joint family. Seventy-five per cent of participants hailed from medium-sized families with 4-7 members. In terms of occupational status, 45 per cent were daily wage earners, 25 per cent were self-employed, 25 per cent were farmers, and 5 per cent were unemployed. The income distribution was also unique, with the largest share (45%) earning 4000-6000 per month. Notably, all the caregiver participants were unpaid, reflecting a selfless commitment to their roles.

Table 1

Background of the study Participants N=20

Age category of the Elderly	**Total**	**%**	**Family Type**	**Total**	**%**
20-29	01	5	Nuclear	19	95
30-39	10	50	Joint	01	5
40-49	01	5	**Family Size**		
50-59	04	20	Small Size (1-03)	04	20
60 and above	04	20	Medium Size (04-07)	15	75
Educational Status			Large Size (More than 7)	01	5
Primary level	04	20	**Occupational Status**		
Upper-Primary	06	30	No specific occupation	01	5
Matriculate	05	25	Farmer	05	25
Higher Secondary	04	20	Daily wage earner	09	45
Graduate	01	5	Self employed	05	25
Marital Status			**Income**		
			3000-4000	06	30
Married	07	35	40000-6000	09	45
Unmarried	13	65	More than 6000	05	25

The narratives gathered within this study are enfolded into three significant areas: caregivers' experiences, their roles, responsibilities, and challenges. These are 'Reimagining Masculinities in Care-giving: Navigating Gender Norms, Economic Realities and Intergenerational Legacies', 'Challenging Traditional Masculinity: Narratives of Male Caregivers Redefining Gender Roles and Identity' and 'Challenging Hegemonic Masculinity: Male Caregivers' Experiences and Identities in Assamese Society'.

Reimagining Masculinities in Care-giving: Navigating Gender Norms, Economic Realities, and Intergenerational Legacies

Although caregiving is recognised as an effeminate activity, men who take up caregiving activities, achieve greater social recognition and appreciation. It is treated as astonishing (Davidson, *et al.*, 2000). Even though there is not much research specifically in Assam. On caring traditions in Assam, elder sons and their spouses traditionally serve as primary caregivers and decision-makers, fostering family harmony. Though such traditions are disappearing over time, they persist in many contemporary families.

A participant, Pradeep and his brother reside with their widower father and an unmarried elderly uncle shared-

"It has been ten years of caring since my mother was bedridden while she was alive. I wake early, do household chores, and help my father freshen up and feed him since he has lost his eyesight. Providing essentials nearby per his convenience, I leave home and return inthe evening. My uncle takes care of himself; however, as he gets older, he becomes my responsibility as well. This journey of caregiving, filled with challenges, has only made me more resilient and courageous".

Pradeep's narrative provides a unique sociological perspective on the concept of 'caring masculinities'. His role exemplifies the evolving landscape of caregiving in contemporary society, which is often seen as traditionally feminine. The economic dimension, a crucial aspect of care-giving, illustrates

how financial factors influence men's care-giving decisions, affecting their experiences and identity. Despite experiencing multiple challenges, Pradeep is determined to provide the best possible care for his loved ones, demonstrating compassion and empathy. Pradeep's narrative challenges the traditional belief in masculinity, which often seen men as nothing more than breadwinners. However, by taking on the care-giving role, Pradeep redefines what masculinity and changes how he sees himself and his place in the family.

Another participant, Nava, provides care to his paralysed parents (father is both ADL and IADL care-receiver, while mother is IADL care-receiver), along with looking after his business simultaneously.

"I have not spent a day without caring for ten years, and it has increased more over the last seven years since my father got paralysed. Though my aunt cooks for everyone, I prepare separately for my parents, as they cannot eat food prepared for others. I shuttle four times daily between home and shop for father's feeding, toileting, and bathing; not to mention countless hospital trips! This is a journey of dedication and sacrifice, but one that I undertake with love and commitment".

Nava's narrative offers a fascinating glimpse into the theoretical framework of 'caring masculinities', in which men are redefining what it means to be a caregiver. As a devoted son, this transformation is not just a choice, but a fundamental part of his identity and responsibilities, breaking down traditional gender roles and paving the way for a new kind of masculinity. His experience demonstrates that care-giving masculinities are evolving, and men are increasingly taking active roles in caring for their loved ones. He is struggling to balance his caregiving responsibilities with other obligations. The economic factors play a crucial role in their caregiving decisions,significantly impacting their lives, businesses, and sense of self. He redefines men as taking up more care-giving roles, navigating complex family dynamics and economic constraints. This transition

challenges conventional notions of masculinity and caregiving, offering a new perspective on what it means to be a man in the present-day societal context.

Another participant, Pranab, the only son of his widowed mother, spoke about his situation,

"With increasing age, my mother's health is gradually deteriorating as she went through three primary operations three years back. As I have to go out to earn a living, I rely on my ancestral cousins who live nearby and to take care of her when I am away".

Pranab's story shows that men can engage in care-giving, balancing it with work and other duties. He demonstrates that despite financial challenges, men can remain caring and supportive towards their loved ones, particularly the ageing parents who need assistance. By caring for his mother, Pranab challenges traditional masculine norms, showing that being a good son and human being means being present for those in need. This represents a significant shift in gender role perceptions, unfolding around us. Men like Pranab foster a more nuanced and compassionate understanding of masculinity, beneficial for society as a whole.

An elderly caregiver, Mahendra, who has been providing care to his widowed mother and his diseased wife, shared his caregiving experiences in quavering,

"Care-giving isnot a burden for me now, unlike when my wife cared for my mother. Now seeing her painful journey hurts me every day. I would be the happiest husband if I could cure her disease permanently; God knows when it will end, and what more challenges I will face. My son knows what I do for them, and I believe it would help him to anticipate care as an important part of life. This journey of caregiving is filled with love and compassion, and it touches me deeply every day".

Mahendra's story offers a fascinating look at how men's roles in caring for their loved ones are changing. He shows that men can

be just as compassionate and supportive, and that they can prioritise their family's needs above societal expectations. This change in his perspective on caregiving suggests that men's attitudes towards it are evolving, and they are starting to recognise the importance and meaning of caring for others. Mahendra's experience is an excellent example of how men can embrace care-giving as a positive and fulfilling part of their lives, and how this can lead to a more equal and supportive family dynamic.

Another caregiver, Moina, who has been providing care to his mother-in-law, his diseased wife and two children, stated-

"I wake up early prepare breakfast and help both my wife and my mother-in-law freshen up and take their medicine. My mother-in-law receives family pensions from her husband, but all are spent on their medications and hence, being the lone earner of my family, I have to go to work for our survival".

Moina's story is a powerful example of how men are redefining their roles in the family. Moreover, it also shows how hard it can be for families, especially those with low incomes, to balance their financial responsibilities with their caregiving duties. Besides, it is an excellent example of how masculinity can be flexible and responsive to different social and economic contexts.

In conclusion, within the framework of caring masculinities in Assamese society, these narratives serve as compelling examples of how care-giving responsibilities and economic realities can challenge and reshape traditional gender roles and expectations. Throughout these narratives, we observe a remarkable fluidity of masculinity. Notably, some caregivers express hope that their children will recognise and value the importance of caregiving. This expression suggests a possible shift in societal values and expectation for caregiving roles, facilitating the emergence of new norms and perceptions. In summary, these narratives offer a profound sociological insight into the complex dynamics of caring masculinities.

Challenging Traditional Masculinity: Narratives of Male Caregivers Redefining Gender Roles and Identity

The inducements behind involvement as a primary caregiver provided a rich account of caregiving experiences. Until a half-century ago, several generations lived together under the same roof. This became rare over time, and instead, care-giving was institutionalised, with home care professionals appointed. From the participants' shared experiences, the reasons can be categorised as 'Family commitment (Kinship), 'Absence of other alternatives, ' and 'Ethical. All reasons were well reflected during conversations with the participants,and some had mixed reasons for their involvement in caring.

In terms of family commitment, two participants, Tarun and Pratim, sacrificed their jobs. Tarun lost his father early, and hence, his elder brothers assumed familial responsibilities. After the intermediate, Tarun joined a private firm to take on financial responsibilities. Four years ago, his mother was diagnosed with cancer, prompting him to leave his job voluntarily to care for her. He stated,

"I am ready to care for my mother, whatever challenges come my way. It is not just a matter of care and concern, but also the dedication, respect and regard to my brothers as well by shouldering me in such a period. I have the belief that I can earn money later, but once I lose my mother, I cannot get her back again".

Tarun's narrative offers a fascinating sociological insight into the concept of caring masculinities within family dynamics. Tarun's willingness to take on this responsibility signifies a shift away from rigid gender roles. Tarun's narrative underscores the importance of family commitment and kinship. He sees caregiving as a duty driven by his deep respect and regard for his brothers. In this regard, care-giving can be seen as an expression of love, dedication and responsibility rather than a strictly gendered role. Tarun's decision to give up his job reflects a sense of ethical duty and moral responsibility to care for his loved ones. Tarun's

narrative deviates from traditional masculinity and exemplifies a contemporary, compassionate understanding of male caregiving within caring masculinities. It underscores the idea that caregiving is not solely determined by gender but is influenced by a complex interplay of familial bonds, ethical considerations and personal values.

Pratim lost his father in childhood. After completing post-intermediate, he left home for eight years, leaving his mother and sister alone. He returned just before his sister's wedding and started a local business to support his mother.

"Yes, I earned when I had a job, but the happiness of living with the loved ones is incomparable and cannot be measured in money. If I do not look after her at such a crucial phase, what is the need for doing rituals for her soul after her death? I am not the type of person who cries after losing their parents. I believe in caring for parents while they are alive, as it is the right way to show our respect and regard. I do not want to carry over the regret that I did not do anything for my mother when she was alive".

Pratim's narrative powerfully illustrates how caring masculinities can challenge traditional family gender roles. He prioritises being a son and brother, emphasising care as a primary duty and source of profound happiness. His focus on caring for living parents shows respect, diverging from prioritising posthumous rituals. This demonstrates resilience and the ability to overcome obstacles in caregiving. Besides, it exemplifies a modern masculinity interpretation within caring masculinities, highlighting emotional bonds, family commitment and rejecting traditional norms.Undeniably like the previous literature (Ribeiro & Paúl, 2008), the filial responsibilities, familial commitment (kinship), and accomplishing someone's obligations and liabilities are prime reasons a man engages himself in caring activities.

The lack of alternatives often drives caregivers into caregiving roles; however, among elderly caregivers in India, caring for spouses

is common due to the country's growing geriatric population. The next motive, as specified by the participants and other studies (Cahill, 2000; Harris, 1993; Siriopoulus, *et al.*, 1999), is affection and bonding. Passionate attachment was a significant factor, and according to the review by Milne and Hatzidimitriadou's (2003:402) review, for older husbands, caregiving towards their wives is a role, as is reciprocity within marriage, illustrating commitment (Ribeiro, *et al.*, 2007).The kinship relationship, especially the affinal ties,motivates the elderly participants to care. Most participants thought that providing care to their wives is considered both an obligation and a responsibility of marriage vows, which strongly ties their marital bond. Many studies (Neufeld & Margaret, 1998; Milne & Hatzidimitriadou, 2003; Harris, 1993; Cahill, 2000; Siriopoulus & Brown, 1999) supported these findings, and researchers accentuated that obligation is one of the perennial motives to take care of a wife as a reverberation of marriage, expectation from society in regard of spousal role and commitments towards the marital bonding.

Among the four elderly participants, three are spousal caregivers, and only one provides care to his widowed mother and diseased wife. Two elderly spousal caregivers 'kula' and 'kusha' stated their views on the positive impact of caregiving in their lives.

Kulahas been providing care to his paralysed wife since the birth of their younger daughter. Like other parents, they both expected the filial care from their son and daughter-in-law, but it never materialised. He expressed,

Caring is not new for Kula; however, it came suddenly and unexpectedly. The absence of alternatives led him to care, but their bond is the prime reason. Sometimes he feels proud that at a stage when he needs care, he is caring for his wife, helping her daily, and he will continue till his last breath.

Kusha and his wife are a childless couple who have been taking care of each other for a long time. Unfortunately, three years before his wife's health condition worsened, he became the primary caregiver to her. He stated,

As a childless couple, we expect no care from others; instead, we promised mutual care in old age. I never imagined responsibilities would fall on me like this. Since marriage, we have a divine bond as husband-wife, and I have never neglected her health. She is my strength; although she cannot help me as she used to, I find her presence beside me comforting. Believe me, I am afraid to imagine her absence in my life or mine in hers.

The above narratives offer intriguing insights into caring masculinities, that prioritise emotional bonds and care-giving over traditional gender roles, demonstrating a shift away from rigid norms. Caring for spouses is seen as an expression of love, devotion and commitment, enriching their lives. They acknowledge the impacts of ageing and physical decline. Domestic chores are no longer seen as women's tasks alone, defying the traditional expectations. They exemplify the importance of emotional bonds, mutual care, and rejection of gender roles, fostering a compassionate and inclusive understanding of masculinity in caregiving contexts.

Challenging Hegemonic Masculinity: Male Caregivers' Experiences and Identities in Assamese Society

According to Connell's theory of hegemonic masculinity, a highly valued form of masculinity exists in every culture,associated with the most dominant position in the gender order (Connell, 1995)**.** It is to be accentuated that, regarding hegemonic masculinity, not all older men need to define their masculinity; some may redefine or deny the central position of hegemonic masculinity. Thus, it is necessary to investigate how elderly caregivers delineate their masculinity and how crucial caregiving is in shaping masculinity, as caregiving is not part of the hegemonic masculinity pattern in our societal culture. The culture of Assamese society is an important aspect that deserves discussion. Due to low income and hailing from poor and marginalised families, their status may differ from that of other men in similar communities.

The study revealed mixed outcomes about their identity as caregivers. Although some caregivers strive to establish and normalise

their identity as family caregivers, their pride in their caregiving roles, as they repeatedly used words like mota manuh hisape (being a man), Giriyek hisape (being the husband), putek hisape (being the son) and deutak hisape (being the father), was palpable. They felt proud, stating that the care they have been providing, like carrying a paralysed person in/out of home for years, cannot usually be done by females. Nava, Durlav, Monoj and Paresh are such caregivers.

Manoj, an unmarried participant from the low-income category, shared his perspective,

"While I look at other fellows of my age, I sometimes pity myself for taking on family responsibilities so early. It is true that the care I have been providing to my parents, especially my father, cannot be expected from my sister or any female,because they cannot regularly hold and carry a person inside and outside".

His narrative underscores the societal perception that while women are often the primary caregivers in families, caring for bedridden individuals is physically demanding and challenging for females, and one cannot expect the same level of care from a woman as a man can provide.

Another unmarried caregiver, Nava, belonged to the middle-income category, shared,

"I have not been married till now, do you know why? Who would consider marrying their daughter or sister into a family like ours? They worry about their daughter's future, and I think my wife cannot provide the care level I have been providing to them".

Nava's thought suggests that caring requires physical strength, and men perform it more effectively, especially in bedridden care recipients. The study's outcome was also reflected in the work of Leung, *et al.*, (2019), which challenged the notion that caring activities performed by females are not considered heavy work or even work, as Finch & Groves (1993) and Thomas (1993) stated. Similar to the findings of the Leung, *et al.*, (2019), this study also revealed that a few participants do not believe in conventional

masculinities; they find them irrelevant today and challenge the notion that men are seen as family breadwinners.Within this frame of reference, a participant, Paresh, who sacrificed his job, has been providing care to his widowed aunt and shared his experiences, stating,

In our society, joint earning by husband and wife is viewed as a sign of financial stability. Suppose a woman leaves her job to take on family responsibilities. In that case, it is accepted neutrally and often appreciated. However, if a man leaves his job for the same reason, people do not take it as easily, nor appreciate his dedication.There is a saying,*"maikir tolotia" (dominated by the wife),* in our society, that refers to a situation in which the husband financially depends on his wife. I overheard such gossiping. We all agreed that if I had not left my job, my wife could not have performed the caring tasks since my aunt frequently gets sick and cannot move on her own.

Paresh's narrative reflects that he receives societal appreciation. Some women say every man should be like him, expecting care similar to what Paresh provides for his aunt and family. This societal recognition, along with appreciation from wife and parental blessings, generates positive caring vibes. They say no one provides care like their husband or son; both caregivers and care recipients believe this.These narratives suggest that masculine identity can be transformed into a caring identity, and it has sufficient potential to achieve equality (Elliott, 2016). Consistent with Leung, *et al.*, (2019) study, some participants caring experiences also revealed positive changes that helped them reshape their family bonding.

One of the caregivers shared a personal transformation, highlighting the challenges and adaptations he faced. He said, "I was not the person I am now. I drank occasionally, neglected my children and was not close as a father; they hesitated sharing their needs and problems with me. When my wife was diagnosed with a disease, responsibilities fell on me. Initially, it was challenging, but I adapted gradually. Now my son and daughter understand me, and share their needs directly without

involving their mother." This narrative underscores the personal growth and adaptation that caregiving can bring.

The views of some participants suggest that caring should be a familial responsibility, embraced by any member without hesitation, based on convenience and consensus. The meaning of care is reformulated, potentially breaking the fallacy of women as natural caregivers in a gendered society.

Conclusion

This study has provided valuable insights into the experiences and perceptions of male primary caregivers, shedding light on their complex motivations and challenges in their caregiving roles. The findings demonstrate that caring holds diverse meanings for different individuals, influenced by factors such as age, working status, and the nature of the relationship with the care recipient. Caregivers from low-income backgrounds face financial constraints and the dual burden of caregiving. Role conflict arises for some male caregivers as they struggle with doubts about their capabilities and satisfaction with their caregiving role-emotional, whether marital, filial or paternal, primarily motivates men to engage in caring practices. For elderly husbands, engaging in caring practices boosts their self-esteem and helps them find a new meaning in life by fulfilling commitments to their wives. The study emphasises the significance of kinship obligation over gender in the caregiving process. Although the absence of female caregivers is the primary reason men became involved in caring activities, other factors, such as women's unwillingness to care, cannot be ignored. Besides, as in other parts of India, women in Assam usually engage in caring tasks. Nevertheless, the material support men provide cannot be underestimated, and their contributions to caring activities bring positive change to our society. The positive responses, such as a wife's acknowledgement and social recognition, demonstrate that men's care-giving is not only valuable but also deserves more recognition, especially in a society where care-giving is often seen as a feminine role.By addressing the social and cultural barriers that currently exist, we can pave the way for a more equitable

distribution of caregiving responsibilities, where both men and women are equally acknowledged and valued for their vital roles in caring for their loved ones.

References

Baker KL, Robertson N, & Connelly D. (2010). Men caring for wives or partners with dementia: masculinity, strain and gain. *Ageing Mental Health.* 14, (3) 319–327.

Barusch, AS & Spaid, WM. (1989). Gender differences in caregiving: Why do wives report greater burden?, *The Gerontologist*. 29, 5: 667–676.

Cahill, S. (2000). Elderly husbands caring for wives with Alzheimer's disease: Are male caregivers really different? *Australian Journal of Social Issues,* 35: 53–73.

Campbell, L. D., & Carroll, M. P. (2007). The incomplete revolutions: Theorising gender when studying men who provide care to ageing parents. *Men and Masculinities*, *9*, 491–508.

Chappell NL, Dujela C, Smith A. (2015). Caregiver Well-Being: Intersections of Relationship and Gender. *Research Aging,* 37:623–645.

Connel, R.W. (1995). *Masculinities* Berkeley University of California Press.

Crompton, R. (Ed.). (1999). *Restructuring gender relations and employment: The decline of the male breadwinner*. New York, NY: Oxford University Press.

Davidson, Kate, Sara Arber and Jay Ginn. (2000). Gendered meanings of care work within late-life marital relationships, *Canadian Journal of Ageing*, 19, 4: 536–553.

Dohner, H., Kofahl, C., Hudecke, D & Mnich, E. (2007). *Services for supporting Family Carers of Older Dependent People n Europe : Characteristics Coverage at Usage,* The National Survey Report, The project of Eurofamcare, Germany.

Elliott, K. (2015). Caring masculinities: Theorizing and emerging concept. *Men and Masculinities*, *19*. 240–259.

Finch, J., & Groves, D. (Eds.). (1983). *Labour of love: Women, work and caring*. London, England: Routledge.

Harris, P. B. (1993). The misunderstood caregivers? A qualitative study of the male caregivers of Alzheimer's disease victims.*Gerontologist,* 33: 551–556.

Houde SC (2002). Methodological issues in male caregiver research: an integrative review of the literature. *Journal of Advanced Nursing,* 40:626–640.

Leung, L., Chan, K.& Tam, K. (2019). Reconstruction of Masculine Identities Through Caring Practices: The Experiences of Male Caregivers in Hong Kong, *Journal of Family Issues,* 1–21.

Lewis, J. (2001). The decline of the male breadwinner model: Implications for work and care. *Social Politics*, *8*. 152–169.

Lin FL, Fee HR, Wu HS. (2012). Negative and positive caregiving experiences: A closer look at the intersection of gender and relationships *Fam Relat*, 61(2) : 343-358.

Milne, A. & Hatzidimitriadou, Eleni (2003). Isn't he wonderful?" Exploring the contribution and conceptualization of older husbands as carers, *Ageing International*, 28.4: 389–408.

Neufeld, A. & Margaret J. H. (1998). Men as caregivers: reciprocal relationships or obligation?, *Journal of Advanced Nursing*, 28. 5: 959–968.

Papastavrou E, Tsangari H, Kalokerinou A, Papacostas SS & Sourtzi P. (2009). Gender issues in caring for demented relatives. *Heath Science Journal*, 3:4153.

Pinquart M & Sörensen S. (2006). Gender differences in caregiver stressors, social resources, and health: an updated meta-analysis, *The Journal of Gerontology B Psychological Science Social Science.* 61:P33–P45.

Pleck, J. H. (1995). The gender role strain paradigm: An update. In R. F. Levant & W. S. Pollack (Eds.), *A new psychology of men* (pp. 11–32).

Pyosti MM, Laakkonen ML, Strandberg T, Savikko N, Tilvis RS, Sulkava UE & Pitkala KH. (2012). Gender differences in dementia spousal caregiving, *Internal Journal ofAlzheimer's Disease,* 1–5.

Ranson, G. (2012). Men, paid employment and family responsibilities: Conceptualizing the "working father." *Gender, Work & Organization*, *19*, 741–761.

Ribeiro, O., Paul, C., & Nogueira, C. (2007). Real men, real husbands: Caregiving and masculinities in later life,*Journal of Aging Studies.21*. 302-313

Rochlen, A., Suizzo, M.-A., McKelly, R., & Scaringi, V. (2008). "I am just providing for my family": A qualitative study of stay-at-home fathers,*Psychology of Men& Masculinity.9*. 193–206.

Russell R.(2001). In sickness and in health: a qualitative study of elderly men who care for wives with dementia. *Journal of Ageing Studies,*15:351367.

Siriopoulus, G, Brown, Y,& Wright, K.(1999). Caregivers of wives diagnosis with Alzheimer's disease: Husband's perspective, *American Journal of Alzheimer's Disease*. 14. 79–87.

Thomas, C. (1993). Deconstructing concepts of care, *Sociology.27*. 649–669.

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Loneliness, Executive Functioning, and Gender: Intersections in Ageing

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ABSTRACT

Older adults are more vulnerable to loneliness, which may lead to cognitive decline and an overall decrease in their quality of life. The primary objective of this study was to investigate the relationship between loneliness and executive functioning in 60 participants, aged 60 to 80 years including both male and female individuals. Loneliness was measured using the UCLA Loneliness Scale, Version 3, and executive functioning was assessed using the Controlled Oral Word Association Test (COWA) and the Animal Names Test (ANT). The findings revealed a negative relationship between the scores of UCLA and COWA (r = -0.064) and a positive relationship between the scores of UCLA and ANT (r = 0.024). In the absence of a significant gender difference, the t-value suggested no significant difference in loneliness. However, females performed better than males in executive functioning, assessed by COWA and ANT. These findings, although not showing

a strong direct correlation between loneliness and executive function, shed light on the complex relationship between social factors and cognitive health in older adults. They have significant implications for gerontology and mental health, suggesting that interventions targeting loneliness, such as social support programmes and cognitive training, may improve cognitive health in older adults, thereby enhancing their overall quality of life.

Keywords: Elderly, Loneliness, Executive functioning, Cognitive decline

According to the World Health Organisation, the elderly population is defined as people aged 60 and over (Allen *et al.,* 2003). With ageing, the elderly population faces many challenges in their daily life, which can besocial, financial, physical health, and mental health challenges. Cognitive health deteriorates as people age, referring to the ability to think, learn, and remember, and is an essential component of daily life activities. Cognitive decline is a common phenomenon in older adults, and increasing forgetfulness is a common symptom. Elderly people may take longer to think of a word, remember someone's name, or forget important appointments or social engagements, all of which may indicate cognitive impairment. Loneliness is a state of distress or discomfort arising from one's a perceived gap between one's desires for social connection and the actual experiences of social connection. According to the Centres for Disease Control and Prevention, before the pandemic, one in every four people over the age of 65 experienced social isolation, putting them at a higher risk of loneliness. Estimating exact number of lonely seniors is challenging, but a study of adults over 60 found that 43 % reported feeling lonely. Studies reveal that nearly every second elderly person in a country with a population of one billion or more experiences loneliness (Aylaz *et al.,* 2012). Several factors can contribute to loneliness among the elderly. First, it could be a sign of

apsychological disorder or some other illness, such as depression or dementia (Boss *et al.,*2015). Executive functioning is a higher-level cognitive process. In elderly individuals, numerous studies have focused on executive dysfunction, which comprises three major components: inhibitory control, working memory, and fluency. Planning, decision-making, problem solving, action sequencing, memorising facts, recalling information, task assignment and organisation, effortful and persistent goal pursuit, inhibition of competing impulses, flexibility in goal selection, and goal-conflict resolution are all part of it (Corbo *et al.,* 2022). These frequently involve the use of language (Halder *et al.,*2024), judgment, abstraction, concept formation, logic, and reasoning. Some changes in thinking ability are considered normal as part of the ageing process (Doane & Adam, 2010). Damage in the executive system can also lead to severe cognitive impairment, Dementia of Alzheimer's type, Frontotemporal Dementia and Lewy body Dementia (Halder & Manot, 2020; Ghosh & Halder, 2023). It is crucial to understand these psychosocial factors in ageing, as they play a significant role in the overall health and well-being of the elderly.

Building on a previous study that explored verbal and semantic fluency as indicators of cognitive decline with ageing, the present study aimed to delve deeper into related psychosocial determinants, such as loneliness. The unique contribution of this study lies in its exploration of the relationship between loneliness and executive functioning, with a particular focus on the potential role of gender differences in the geriatric population. The findings of this study, while not showing a strong direct correlation between loneliness and executive function, shed light on the complex relationship between social factors and cognitive health in older adults. These findings, though not conclusive, may significantly influence future research and interventions in this area, underscoring the importance of understanding and addressing loneliness in the elderly. By highlighting the potential impact of our findings, we aim to inspire hope and

optimism for the future of cognitive health research and interventions in the elderly population.

Method

Sample

For this cross-sectional, correlational, and comparative study, a sample of 60 participants (30 males and 30 females), aged 60-80 years, was selected using a purposive sampling technique. The individuals with neurological or psychological disorders, geriatric depression, cognitive impairments, physical disabilities, past medical or psychiatric illnesses, and those residing in old age homes or being uncooperative were excluded. The sample size was determined based on power analysis to ensure adequate statistical power for the study's objectives. This rigorous methodology, which included careful participant selection and exclusion criteria based on diagnostic interviews, medical records, and self-report measures, ensures the validity and reliability of our findings, and provides a strong foundation for future research and interventions in this area.

Tools Used

The respondents loneliness was assessed using the UCLA Loneliness Scale, Version 3 (Russell, 1996), a highly reliable tool in the field that measures subjective feelings of loneliness and social isolation. This scale is widely used in loneliness research on loneliness and has been validated in numerous studies, making it a robust measure for our study. Executive Functioning was evaluated using two tests from the NIMHANS Neuropsychological Battery (2004): the Controlled Oral Word Association Test (Rao *et al.*, 2004) for verbal fluency, which assesses the ability to generate words under specific conditions, and the Animal Names Test for category fluency, which measures the ability to generate words within a specific category. The NIMHANS Neuropsychological Battery is a comprehensive tool for assessing cognitive function and has been used in various studies on executive functioning, providing a solid foundation for our study. Both tests demonstrated

satisfactory reliability and internal consistency, further validating our choice of tools. The study, which was part of the dissertation work, followed ethical guidelines and was approved by the departmental research team, ensuring the integrity and ethical conduct of our research and instilling confidence in the validity of our findings.

Statistical analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics (frequencies, percentages, means, and standard deviations) were calculated for socio-demographic variables to summaries the sample characteristics. Correlation analysis was performed to examine the relationship between loneliness and executive functioning, and t-tests were used to analyse gender differences in these variables, as these methods are commonly used in psychological and neurological studies to explore relationships and differences.

Results

Table1

Socio-demographic details of the sample

VARIABLES	**Mean± SD**		
AgeinYears	69.35±6.582		
Yearsin Education	15.667±1.782		
		FREQUENCY	**PERCENTAGE**
Gender	Male	30	50
	Female	30	50
MaritalStatus	Married	49	81.7
	Widow/Widower	11	18.3
Occupation	Service	10	16.7
	Business	1	1.7
	Retired	33	55
	Housewife	16	26.7
FamilyType	Nuclear	51	85
	Joint	9	15

Table 2

Correlation between scores of UCLA and COWA in the geriatric population

	UCLA	
VARIABLE	**r-value**	**p-value**
COWA	-0.064	0.626
ANT	0.024	0.854

Table 3

Gender difference in scores of UCLA, COWA and ANT in the geriatric population

Variables	**Doman**	**Males**		**Females**		**t-value**
		Mean	**SD**	**Mean**	**SD**	
UCLA score		35.2	9.268	35.133	11.307	-0.025
Executive Functioning	COWA score	23.767	8.529	23.90	7.586	0.064
	ANT score	10.667	3.594	12.40	2.989	2.031*

p*<0.05; p**<0Verbatim**e 4- Presentations of Verbatims on Loneliness:**

Participants	**Verbatims**
61/F	"I feel lonely since my son and daughter no longer live here."
68/F	"I do feel sad; my husband is no longer here, and sometimes I feel lonely too."
77/F	"Sometimes I feel lonely; I have to stay alone at home, and there is no one with me."
65/F	"I do feel sad; my husband is no longer here, and sometimes I feel lonely too."

Discussion

The present study aims to see the relationship between loneliness and executive functioning in the Geriatric population. The geriatric population is vulnerable to mental health difficulties due to a multitude offactorsastheyage. However, they are not very out spoken about it, and they are unaware of the agony they are in. The most significant factor influencing the happiness of the elderly was mental health problems, which had a negative causal relationship with happiness

(Halder *et al.*, 2020). The findings in Table 3 suggest a negative relationship between the scores of UCLA and COWA (r = -0.064). However, it is not statistically significant (p= 0.626, >0.05) since the scores at UCLA reveal that loneliness is not significantly present in the majority of the population. However, scores on COWA suggest a decline in verbal fluency, indicating poor cognitive ability in the elderly, which may suggest that decline is prominent in the elderly population, specifically in verbal fluency, due to the ageing brain (Niechcial *et al.,* 2019). The findings in Table 4 suggest a positive relationship between the scores of UCLA and ANT (r = 0.024). However, it is not statistically significant (p = 0.854, > 0.05), as the UCLA scores indicate that loneliness is not significantly present in the majority of the population. However, the scores on ANT revealedthat the present population performed better in the category fluency task, when given a cue or a specific category, i.e. 'animals' in this case. Therefore, the present population performed better when given a specific category or cue in the Category Fluency task. The findings in Table 3 suggest that there is no significant gender difference in loneliness, as the present population belongs to higher economic strata, is more socially engaged, interactive, and involved in various activities within their residential communities, and actively contributes to society. Therefore, the majority of the present population does not feel lonely and has a sense of perpetual ageing irrespective of their gender. In Executive Functioning, the mean scores of COWA for males were 23.767, and the corresponding SD was 8.529. For females, the mean COWA score was 23.90, with a corresponding SD of 7.586. The t-value was found to be 0.064 (p = 0.949, >0.05). The mean scores of ANT for Males were 10.667, and the corresponding SD was 3.594, and for Females, the Mean score of ANT was 12.46, and the corresponding SD was 2.989, and that value was found to be 2.031 (p=0.047, <0.05). This indicates that Females performed better on COWA and ANT, because they are more cognitively engaged than males. It has been observed that age, education, and gender influence verbal memory, cognitive speed,

verbal fluency, and executive functioning in healthy older adults. Similar to the present study, it has been found that women outperform men on verbal memory tasks (Paula *et al.*, 2013). The current study also aimed to investigate the prevalence of loneliness and verbal fluency difficulties among the elderly population. While examining the contexts of loneliness, as shown in Table 4, insights reveal that participants' verbatim responses encompass a range of loneliness levels, which may be attributed to factors such as social isolation, loss of a loved one, deteriorating physical health, decreased mobility, and a lack of meaningful engagement. The results also highlight verbal fluency issues or declines among the elderly, consistent with age-related cognitive changes that affect executive functioning. The study's limited sample size limits the generalisability of the findings, and the fact that the data were only gathered from an urban gated community limits the generalisability of the results to larger populations. To draw definitive conclusions about loneliness and executive functioning in the older population, these limitations underscore the need for additional research with more representative, diverse samples. Despite these drawbacks, the study emphasises the importance of understanding the psychological and cognitive challenges associated with ageing.

Conclusion

The results of this study demonstrate the intricate and subtle connection between executive functioning and loneliness among the elderly. Loneliness may not have a direct or significant impact on the examined domains of executive performance in older persons. Additionally, there was no statistically significant difference in loneliness between males and females, suggesting minimal gender differences. However, when it came to executive functioning, women did better than men on the COWA and ANT tests, suggesting that there may be gender differences in linguistic or cognitive resilience. These results highlight the need to address loneliness and its potential impacts on quality of life, as well as the importance of further research into the behavioural and cognitive aspects of ageing.

References

Allen, S. C., Jain, M., Ragab, S., & Malik, N. (2003). The acquisition and short-term retention of inhaler techniques require intact executive function in elderly subjects. *Age and Ageing*, 32(3), 299–302.

Aylaz, R., Aktürk, Ü., Erci, B., Öztürk, H., & Aslan, H. (2012). Relationship between depression and loneliness in elderly and examination of influential factors. *Archives of Gerontology and Geriatrics,* 55(3), 548–554.

Boss, L., Kang, D. H., & Branson, S. (2015). Loneliness and cognitive function in the older adult: A systematic review. *International Psychogeriatrics*, 27(4), 541–553.

Corbo, I., & Casagrande, M. (2022). Higher-level executive functions in healthy elderly and mild cognitive impairment: A systematic review. *Journal of Clinical Medicine*, 11(5), 1204.

Doane, L. D., & Adam, E. K. (2010). Loneliness and cortisol: Momentary, day-to-day, and trait associations. *Psychoneuroendocrinology,* 35(3), 430–441.

Ghosh, N., & Halder, S. (2023). Understanding presence and nature of loneliness in adolescents in Kolkata: An exploratory study. *Journal of Psychosocial Research*, 18(2).

Halder, S., & Manot, S. (2020). Identifying suicidal risk and its association with depression in the elderly population. *Journal of Geriatric Mental Health*, 7(1), 29–32.

Halder, S., Mahato, A. K., & Samajdar, S. (2024). Semantic and categorical verbal fluency: An indicator of progression of cognitive decline with ageing. *Annals of Indian Psychiatry*, 8(3), 226–229.

Halder, S., Samajdar, S., & Mahato, A. K. (2020). An exploratory study of cognitive functioning and psychological well-being in middle-aged adults with diabetes mellitus. *Journal of Social Health and Diabetes*, 8(1), 8–12.

Niechcial, M. A., Vaportzis, E., & Gow, A. J. (2019). People's views on preserving thinking skills in old age. *Educational Gerontology*, 45(5), 341–352.

Paula, J. J., & Malloy-Diniz, L. F. (2013). Executive functions as predictors of functional performance in mild Alzheimer's dementia and mild cognitive impairment in the elderly. *Estudos de Psicologia* (Natal), 18(1), 117–124.

Rao, S. L., Subbakrishna, D. K., &Gopukumar, K. (2004). *NIMHANS Neuropsychology Battery – 2004 Manual*. National Institute of Mental Health and Neurosciences.

Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment*, 66(1), 20–40.

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Mental Health Challenges Among Single Elderly Individuals Living Alone

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ABSTRACT

This study investigated the mental health status of 180 elderly respondents, including 90 males and 90 females, aged 60 years and above, who live alone. The sample was evenly distributed among unmarried, widowed, and divorced elderly individuals, with equal representation of both sexes in each category. To measure loneliness, a 10-item Scale was developed, drawing inspiration from the De Jong Gierveld (1980) Loneliness Scale (1985) and the UCLA Loneliness Scale. The findings of this study revealed that widowed and female elderly individuals, particularly those who have recently experienced spousal loss, are at heightened risk for mental health challenges. The study also found that loneliness, insomnia, and depression are deeply interrelated. Importantly, factors such as social class and duration of solitary confinement were found to influence psychological outcomes significantly. These results underscore the critical need for targeted mental

health interventions for vulnerable subgroups within the ageing population.

Keywords : Loneliness, Mental Health, Widow females, Mental health interventions

Contrary to a prevalent myth, older adults are not a burden on society. Many continue to make significant contributions through work, caregiving, and household chores. The majority live independently, but as they age, they may face physical and mental health challenges. While most maintain good health, a notable proportion are at risk for mental health issues like depression and anxiety. Others may grapple with issues such as limited mobility, persistent pain, frailty, dementia, or other medical conditions.

Approximately 14 per cent of individuals aged 60 and above experience a mental health disorder. Data from the Global Health Estimates (GHE-2019) shows that these disorders contribute to 10.6 per cent of the overall disability measured in disability-adjusted life years (DALYs)—in this age group. Depression and anxiety are the most prevalent mental health issues among older adults. These conditions are frequently overlooked and insufficiently treated in older populations, a fact that should raise our concern and empathy. Additionally, the stigma associated with mental illness often discourages individuals from seeking the support they need.

This study focused on elderly individuals living alone without family support. In India, the situation of such elderly individuals is becoming increasingly complex due to shifting population demographics, evolving social values, and the decline of traditional family support systems. These changes are leaving many elderly people to fend for themselves. It is believed that a growing number of seniors are at risk of social isolation, which can be attributed to various factors such as living alone, the loss of loved ones, retirement, or declining health.

Single elderly individuals, though similar in age to their peers, differ significantly in their social experiences due to the stigma often

associated with being alone. While many elderly people live with their families and receive care and support, those who are single often lack such assistance. The absence of a partner can lead to numerous challenges in daily life. In couples, spouses typically provide mutual emotional and financial support; however, this essential support system is often missing for those who are single. As a result, single elderly individuals often become socially and emotionally disconnected from both family and society. This underscores the urgent need for targeted support and intervention services.

Research on the mental and physical health of elderly individuals living alone presents mixed findings. Some studies have found that living alone does not necessarily lead to worse health outcomes compared to other living arrangements (Berardo, 1967; Pezzin & Schone, 1999). However, other research highlights a higher prevalence of psychological issues among elderly individuals who live alone. For instance, older adults in single-person households reported higher levels of anxiety (38%) and depression (27%) than those living with others (31% reported anxiety, and 19% reported depression) (Grundy, 2006; Dykstra, 2009; Doubova *et al.,*2010). Studies of various older populations in the United States, Hong Kong, Japan, and Netherlands have reported that elderly living alone were more likely to be depressed (Cheng *et al,* 2009; Mui, 1998) and have poorer mental health status and quality of life (Chou & Chi, 2000; Gee, 2000; Iwasa *et al.,* 2006) than their counterparts.

As people age, their susceptibility to illness increases, often accompanied by a decline in their health. Srivastava *et al.* (2021) found that widowed older adults living alone were 56 per cent more likely to experience depression compared to their married, co-residing counterparts. Similarly, Lowenthal and Robinson (1976) observed a significant relationship between widowhood and psychiatric problems, with widowed individuals showing different rates of mental impairment than those who were married.

Loneliness has been widely recognised as a contributing factor to mental health decline in the elderly. In a study conducted in Delhi,

Singh & Misra (2009) reported that among 55 older adults aged 60–80 years, depression levels increased alongside feelings of loneliness. While no gender differences were found between loneliness and depression, other studies suggest that elderly females often experience more mental health issues than their male counterparts (Madison & Viola, 1968; Clayton, 1979; Thuen *et al.,* 1997). Chen *et al.* (1999) further noted that widows reported higher levels of traumatic grief, anxiety, and depression compared to widowers.

Victor *et al.* (2000, 2005) emphasised that the primary mental health challenges among elderly women stem from emotional distress, a sense of helplessness, difficulties in social adjustment, isolation, and the perception of being undervalued by both family and society. These feelings often culminate in depression, particularly among widows, where loneliness plays a significant role.

Cognitive decline is another concern for elderly individuals living alone. Maeng-je (2009) found that single seniors had a 2.4 times greater risk of developing dementia compared to those with spouses. Elderly women over the age of 85 were especially vulnerable, 11.6 times more likely to develop dementia than men in the same age group.

Gender differences also emerge in terms of emotional experiences among the elderly. Ko H., *et al*. (2019) reported that older men were more prone to loneliness, depression, and suicidal ideation, whereas older women experienced higher stress levels and more depressive symptoms. Interestingly, older individuals who remained employed reported higher stress but fewer depressive symptoms. This highlights the need for gender-specific approaches in addressing the mental health challenges of the elderly.

Multiple factors contribute to depression in older adults, including female gender (Cole & Dendukuri, 2003), increasing age (Sengupta & Benjamin, 2015), being single or divorced (Yaka *et al.,* 2014), and feelings of loneliness or living alone (Kugbey *et al.,* 2018).

Most studies highlight that elderly individuals living alone—especially widowed women—are more vulnerable to depression,

loneliness, and cognitive decline compared to those living with others. However, some research suggests living alone does not always lead to poorer health outcomes.

Objectives

1. To understand the self-perception of the health status of single elderly living alone.
2. To measure loneliness among single elderly living alone.
3. To find out the type of mental health ailmentsfaced by single elderly people living alone.
4. To explain the duration and treatment of mental health ailmentsfaced by single elderly living alone.

Method

Sample

One hundred eighty single elderly people, aged 60 to 80, living alone in Chandigarh, were carefully selected using the snowball sampling method. A quota sample of 60 single older adults, comprising 30 males and 30 females, was chosen from three different categories: widowed, divorced, and never married. In all three categories, the number of respondents was the same, i.e., 60, with 30 males and 30 females.

Tools used

An interview schedule was used to collect information. Loneliness is a subjective and negative feeling associated with a perceived deficiency in social relationships. To measure loneliness, a 10-item scale was developed, drawing inspiration from the De Jong Gierveld Loneliness Scale and the UCLA Loneliness Scale. Respondents rated each statement on a five-point Likert scale, ranging from "very low" to "very high." The scale included five positively worded and five negatively worded statements. Individual scores ranged from 10 to 50. To determine loneliness levels, quartiles were calculated for analysis. These quartiles were further grouped into three main categories: complete loneliness, moderate loneliness,

and no loneliness at all. Accordingly, 48 respondents (i.e., 26.7 per cent) were found to be completely lonely, 96 respondents (i.e., 53.3 per cent) showed uncertainty about their loneliness status, and 36 respondents (i.e., 20 per cent) were not lonely.

Results

Self-perception of health by the respondents

Self-perception of health status is a crucial measure of well-being and quality of life. In the present study, respondents were asked to rate their health. According to Ferraro, K.F. (1980), 8.5 per cent of the elderly rated their health as excellent, 29.4 per cent as good, 37.4 per cent as fair, and 24.7 per cent as poor. Self-reported health status is not an ideal indicator of health conditions, but it has been surprisingly accurate and a good predictor of subsequent ill health and mortality (Idler & Kasl, 1991; Idler & Benyamini, 1997; Mare & Alberto, 1988). Rose (1965) reported that all respondents rated themselves as unhealthy and were over 70 years old. In this regard, the present study aimed to determine the respondents self-perception of health.

Table 1

Marital status-wise distribution showing self-rated health status of the respondents

Health	Widowed		Divorced		Never Married		Total	
status	Female	Male	Female	Male	Female	Male	Female	Male
Very Good	2 (6.7%)	1 (3.3%)	2 (6.7%)	0	4 (13.3%)	2 (6.7%)	8 (8.9%)	3 (3.3%)
Good	3 (10%)	6 (20%)	3 (10%)	6 (20%)	10 (33.3%)	5 (16.7%)	16 (17.8%)	17 (18.9%)
Uncertain	13 (43.3%)	15 (50%)	19 (63.3%)	18 (60%)	9 (30%)	18 (60%)	41 (45.6%)	51 (56.7%)
Poor	9 (30%)	7 (23.3%)	6 (20%)	6 (20%)	7 (23.3%)	5 (16.7%)	22 (24.4%)	18 (20%)
Very Poor	3 (10%)	1 (3.3%)	0	0	0	0	3 (3.3%)	1 (1.1%)
Total	**30**	**30**	**30**	**30**	**30**	**30**	**90**	**90**

The data indicate that 8.9 per cent of female and 3.3 per cent of male respondents rated their health as very good, with females outnumbering males across all categories. A significant portion of these respondents were never married. Meanwhile, 17.8 per cent of females and 18.9 per cent of males rated their health as good; in this group, males were more prevalent across most marital categories, except among the never-married, where females were in the majority.

A substantial portion of respondents—45.6 per cent of females and 56.7 per cent of males—reported being uncertain about their health status, with divorced females forming the largest subgroup within this category. Additionally, 24.4 per cent of females and 20 per cent of males rated their health as poor, with widows comprising the largest share of this group. Only 3.3 per cent of females and 1.1 per cent of males reported their Health as very poor, and all of them were widowed.

Overall, the findings suggest that many respondents were unsure about their health status. Although they were not suffering from any major illness, they did not perceive themselves as being in poor health.

Loneliness and marital status of the respondents

Loneliness is a feeling of sadness or distress about being alone or disconnected from the society in which a person lives. Loneliness can be more intense the longer it lasts. It is also possible to feel lonely or alone even if friends or relatives surround a person. Loneliness is a state of mind characterised by feelings of isolation and disconnection. Loptata (1980) has stated that the social status of elderly women changes after the death of the spouse, which contributes to the feeling of loneliness. The experience of widowhood means missing out on the relationship with one's partner and participating in social events together.

The following table shows the respondents, marital status and loneliness:

Table 2

Distribution showing marital status-wise loneliness among the respondents

Loneliness	Widowed		Divorced		Never married		Total	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**
Completely	11	12	7	10	5	3	23	25
Lonely	(36.7%)	(40%)	(23.3%)	(33.3%)	(16.7%)	(10%)	(25.6%)	(27.8%)
Moderately	12	15	12	10	22	25	46	50
lonely	(40%)	(50%)	(40%)	(33.3%)	(73.3%)	(83.3%)	(51.1%)	(55.6%)
No loneli-	7	3	11	10	3	2	21	15
ness	(23.3%)	(10%)	(36.7%)	(33.3%)	(10%)	(6.7%)	(23.3%)	(16.7%)
Total	**30**	**30**	**30**	**30**	**30**	**30**	**90**	**90**
	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)

Table 2 presents the relationship between loneliness and respondents' marital status. A total of 25.6 per cent of female and 27.8 per cent of male respondents were classified as completely lonely, with widowed individuals—particularly widowers—making up the most significant portion (43.3%). Additionally, 51.1 per cent of females and 55.6 per cent of males experienced moderate loneliness. Most of these moderately lonely individuals were never married, especially males (83.3%).

In contrast, 23.3per cent of male and 16.7 per cent of female respondents reported no loneliness, with divorced females comprising the highest proportion within this group. The findings suggest that widowed individuals were more likely to experience complete loneliness compared to those who were divorced or never married.

Interestingly, a greater number of divorced respondents reported no feelings of loneliness. This may be because widowed individuals had spent much of their lives with a partner, and now experience a sense of loss and loneliness in their absence. Overall, across all marital status categories, moderate loneliness was the most commonly reported level.

Mental health status of respondents categorised by marital status

According to Nair (1989), among the elderly, the oldest old (those 80 years and over) stand out in striking contrast from the rest of the older population on almost all primary attributes—social, economic, psychological, and health-related. The elderly in the 80+ age group differ from those in the 60-79 age group in several respects. Research studies have indicated that the elderly in the age group of 80 years are economically more dependent, socially more isolated, psychologically more depressed, and need health and personal care. Others have reported that aged widows face more mental problems than married elderly, and elderly women face more mental health problems than elderly men (Clayton, 1979; Madison & Viola, 1968; Thuen *et al.,* 1997). According to Chen *et al. (1999),* widows have higher mean levels of traumatic grief, depressive and anxiety symptoms as compared to widowers. An attempt was made to assess the respondents' mental health.

Table 3

Distribution of mental health issues among respondents based on marital status.

Response	Widowed		Divorced		Never married		Total	
	Female	Male	Female	Male	Female	Male	Female	Male
Forget	15	9	7	12	5	5	27	26
fulness	(50%)	(30%)	(23.3%)	(40%)	(16.7%)	(16.7%)	(30%)	(28.9%)
Insomnia	17	10	10	6	9	12	36	28
	(56.7%)	(33.3%)	(33.3%)	(20%)	(30%)	(40%)	(40%)	(31.1%)
Depression	11	7	14	10	7	8	32	25
	(36.7%)	(23.3%)	(46.7%)	(33.3%)	(23.3%)	(26.7%)	(35.6%)	(27.8%)

*The study provided multiple responses for the mental ailment, and each problem was calculated from the responses of 30 females and 30 males across all marital statuses. The total has been calculated from 90 respondents, including both females and males.

The results indicate that many elderly respondents were experiencing multiple mental health issues. According to the data, 30 per cent of female and 28.9 per cent of male respondents reported suffering from forgetfulness, such as forgetting to take medications. This issue was more prevalent among female respondents, particularly widows, who were predominantly aged 60–70 years and from upper-class backgrounds.

Insomnia was reported by 40per cent of females and 31.1per cent of males, with the highest prevalence among widowed individuals, especially those in the 60–70 age group. Additionally, 35.6per cent of female and 27.8per cent of male respondents were affected by depression, with divorced women comprising the largest share in this category.

Overall, insomnia and depression were more prevalent among female respondents, while forgetfulness was slightly more common among males. Further analysis revealed that women from upper-class backgrounds were particularly vulnerable to mental health issues.

These findings suggest that elderly women, especially those who are widowed or divorced and from higher socio-economic backgrounds, are more prone to mental health problems than their male counterparts. The results align with the findings of previous studies by Chen *et al*. (1999), Clayton (1979), Madison and Viola (1968), and Thuen *et al*. (1997).

Duration of mental health problems

According to Gahler (2006),the length of time of divorce/ separation and depressive symptoms may persist longer in men. Respondents were asked about their prolongation of mental health problems. This variable was used to examine the effect of being alone on the duration of respondents' mental health.

Table 4

Distribution of the duration of mental illness among respondents based on marital status.

Response (in years)		Widowed		Divorced		Never married		Total	
		Female	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**
Forget fulness,	**<10**	11(36.7%)	8(26.7%)	4(13.3%)	6(20%)	3(10%)	4(13.3%)	**18(20%)**	**18(20%)**
Since when?	**10-20**	4(13.3%)	1(3.3%)	3(10%)	2(6.7%)	2(6.7%)	1(3.3%)	**9(10%)**	**4(4.4%)**
	20>	0	0	0	4(13.3%)	0	0	**0**	**4(4.4%)**
Insomnia Since	**<10**	14(46.7%)	9(30%)	10(33.3%)	4(13.3%)	8(26.7%)	11(36.7%)	**32(35.6%)**	**24(26.7%)**
when?	**10-20**	3(10%)	0	0	1(3.3%)	0	1(3.3%)	**3(10%)**	**2(2.2%)**
	20>	0	1(3.3%)	0	1(3.3%)	1(3.3%)	0	**1(1.1%)**	**2(2.2%)**
Depression	**<10**	10(33.3%)	6(20%)	14(46.7%)	10(33.3%)	7(23.3%)	8(26.7%)	**31(34.4%)**	**24(26.7%)**
Since when?	**10-20**	0	1(3.3%)	0	0	0	0	**0**	**1(1.1%)**
	20>	1(3.3%)	0	0	0	0	0	**1(1.1%)**	**0**

* The respondents gave multiple responses for the mental ailments, and each problem has been calculated from the responses of 30 females and 30 males across all marital statuses. The total has been calculated from 90 respondents,including both females and males.

The table indicates that a significant number of respondents had insomnia, with 35.6 per cent of females and 26.7 per cent of males affected. Most of these individuals had been experiencing insomnia for less than 10 years, with widows making up the largest group. Additionally, 10 per cent of female and 2.2 per cent of male respondents reported suffering from insomnia for 10–20 years, again with widows being the most affected.

Regarding depression, 34.4 per cent of females and 26.7 per cent of males had been experiencing symptoms for less than 10 years, with the highest proportion among divorced women. Only 1.1 per cent of respondents had suffered from depression for 10–20 years—all of whom were widowers—while another 1.1 per cent had experienced depression for over 20 years, and all of them were widows.

Forgetfulness was reported by 20 per cent of both male and female respondents over the past 10 years, with widows once again comprising the majority. Additionally, 10 per cent of females and 4.4 per cent of males reported experiencing forgetfulness for 10–20 years, most of whom were divorced. Only 4.4 per cent of male respondents reported suffering from forgetfulness for over 20 years, all of whom were divorced men.

Overall, widowed individuals—especially those who had recently lost their spouses—were more likely to suffer from mental health issues. This suggests a connection between the duration of living alone and mental well-being in elderly individuals. In contrast, divorced respondents tended to experience mental health problems after a longer period post-divorce. Among the reported mental health issues, insomnia emerged as the most prevalent, followed by depression. Both conditions were most common among those living alone for less than 10 years, particularly widows who had recently become single.

Treatment for Mental Ailment

Mental health has a significant impact on physical health, and vice versa. However, even the everyday physical and emotional stress

that occurs due to ageing can be a risk factor for mental ailments like Depression and Forgetfulness; there is a need for treatment. In this regard, an attempt was made to know whether respondents had undergone treatment for the mental illness.

Table 5.

Distribution of mental illness treatment among respondents based on marital status.

Response	Widowed		Divorced		Never married		Total	
	Female	Male	Female	Male	Female	Male	Female	Male
Yes	12 (40%)	8 (26.7%)	9 (30%)	4 (13.3%)	5 (16.7%)	8 (26.7%)	26 (28.9%)	20 (22.2%)
No	6 (20%)	2 (6.7%)	5 (16.7%)	6 (20%)	8 (26.7%)	4 (13.3%)	19 (21.1%)	12 (13.3%)
Not applicable*	12 (40%)	20 (66.7%)	16 (53.3%)	20 (66.7%)	17 (56.7%)	18 (60%)	45 (50%)	58 (64.4%)
Total	**30**	**30**	**30**	**30**	**30**	**30**	**90**	**90**

* Those who did not have a mental ailment were categorised as 'not applicable'.

The table reveals that 28.9 per cent of female and 22.2 per cent of male respondents were receiving treatment for their mental health issues. Female respondents outnumbered males across all marital status categories, except among those who had never been married. The majority of those seeking treatment were widows, particularly those who had recently lost their spouses.Further analysis showed that most of these widows were between 60 and 70 years old. In contrast, 21.1 per cent of female and 13.3 per cent of male respondents reported not receiving any treatment for their mental health concerns. Overall, the findings indicate that female respondents—especially recently widowed women—were more likely than males to seek treatment for mental health issues.

Preference for the hospital

Respondents were asked to indicate which hospital they prefer for treating their health problems. According to Raj Kumari & Nul (2001), 79 per cent of the elderly female respondents visit government hospitals. In this regard, an attempt has been made to determine the respondents' preference regarding the hospital.

Table 6

Marital status-wise distribution showing preference of the hospital of the respondents for treatment

Response	Widowed		Divorced		Never Married		Total	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**
Govt.	18 (60%)	21 (70%)	16 (53.3%)	22 (73.3%)	24 (80%)	20 (66.7%)	58 (64.4%)	63 (70%)
Private	12 (40%)	9 (30%)	14 (46.7%)	8 (26.7%)	6 (20%)	10 (33.3%)	32 (35.6%)	27 (30%)
Total	**30**	**30**	**30**	**30**	**30**	**30**	**90**	**90**

The data shows that 64.4 per cent of female respondents and 70 per cent of male respondents preferred receiving treatment in government hospitals. Male respondents were more likely to choose government hospitals across all marital status categories, except among the never-married, where the highest number was female.

Further analysis revealed that most respondents who opted for government hospitals belonged to lower and middle income backgrounds. However, a few upper-class respondents also preferred government facilities, citing better care and access to qualified doctors. Some widowed ex-government employees also favoured government hospitals due to the availability of medical reimbursements.

On the other hand, 35.6 per cent of female respondents and 30 per cent of male respondents preferred treatment from private hospitals. In this group, female respondents were in the majority across all categories, except among those who were never married. Most of those choosing private hospitals were from higher social classes, followed by the middle class. Their primary reasons for preferring private care were to save time and receive more personalised attention.Overall, the findings indicate that a majority of respondents—especially those from lower and middle-class backgrounds—preferred government hospitals for their treatment.

Discussion

The present study explored the lived experiences of single elderly individuals living alone, focusing on their health perceptions, loneliness, mental health conditions, and treatment-seeking behaviour. One of the primary objectives was to understand how single elderly individuals living alone perceive their health. The results show that a considerable number of respondents, particularly divorced females and widows, were unsure about their health status, despite not reporting any major illness. Only a small percentage rated their health as very good, while a slightly larger proportion described it as poor or very poor, most of whom were widowed women. Women—especially widows—were more likely to report poor or uncertain health, suggesting a gendered vulnerability related to the absence of a life partner.

Loneliness was measured as a central emotional experience in the lives of single Elderly individuals. The findings highlight that widowed individuals, particularly widowers, were the most likely to report complete loneliness. In contrast, never-married males showed higher levels of moderate loneliness, while divorced respondents were more likely to report no loneliness.This suggests that the nature of past relationships significantly impacts the experience of loneliness in later life. Widowed individuals, having experienced a long-term emotional bond, may feel a greater void after their partner's death. On the other hand, never-married individuals might have adapted to solitude over time, and divorced individuals may have developed coping mechanisms post-separation. Across all categories, however, moderate loneliness was the most commonly reported experience, indicating a general emotional gap among the elderly living alone, regardless of their marital history.

The study also sought to identify common mental health problems among the single Elderly living alone. Insomnia emerged as the most prevalent ailment, followed by depression and forgetfulness. Women, especially widows and those from upper socio-economic classes,

reported higher rates of depression and insomnia. This pattern may be tied to social isolation, grief, and lack of meaningful daily engagement.Forgetfulness, although reported by both genders, was slightly more prevalent among men. It often involved day-to-day memory lapses, such as forgetting to take medications. Interestingly, many of those reporting mental health issues were in the 60–70 age group, suggesting that the early phase of elderly life, especially when adjusting to living alone, may be particularly vulnerable.

Overall, the results support the idea that mental health among the elderly is not solely biological or age-related but deeply linked to their social circumstances—especially the loss of a spouse and living in isolation. This understanding underscores the need for targeted interventions that address the unique mental health challenges faced by the elderly living alone.

Most mental health symptoms, particularly insomnia and depression, were reported by individuals who had been living alone for less than 10 years—indicating that the initial phase of solitude may be the most psychologically taxing. Widowed individuals, especially those recently bereaved, formed the majority of this group.Depression was more prolonged among widowed and divorced respondents, though chronic cases (10–20 years or more) were rare. Forgetfulness had a mixed duration pattern, with some males reporting it for over 20 years, particularly divorced men.

In terms of treatment, more women than men sought help for mental health issues, with widows again forming the majority. This may suggest greater health awareness or willingness to seek support among women. Government hospitals were the preferred choice, especially among respondents from lower and middle-income backgrounds. Even some upper-class respondents chose government facilities, citing better trust in public healthcare and access to experienced doctors. Ex-government employees, particularly widows, also favoured public hospitals due to the availability of medical reimbursements.Those who opted for private hospitals mostly

belonged to higher socio-economic groups and cited quicker service and personalised care as the main reasons. However, the overall trend showed that government hospitals were more widely used, suggesting either economic considerations or greater trust in public healthcare infrastructure.

Conclusion

The findings of this study offer important insights into the complex interplay among loneliness, self-perceived health, and mental well-being among single elderly individuals. Gender, marital history, social class, and duration of living alone all emerged as significant factors influencing their mental and emotional health.Widowed and divorced women, particularly those recently bereaved, were the most vulnerable group, reporting higher levels of loneliness and mental health issues but also showing more proactive treatment-seeking behaviour. Never-married males were more prone to moderate loneliness but seemed somewhat better adjusted to living alone. Mental health issues such as insomnia and depression were most common in the early years of living alone, highlighting the urgent need for early intervention. This underscores the importance of early detection and intervention in addressing mental health issues among the elderly. These results emphasise the need for targeted mental health services, community-based outreach, and social support systems for the elderly–especially those who are single and living alone. Creating avenues for emotional connection and accessible healthcare could significantly improve the quality of life for this growing segment of the population.

References

Berardo, F. M. (1967). Kinship Interaction and Communications among Space-Age Migrants. *Journal of Marriage and the Family*, 29(3), 541-554

Cole MG, Dendukuri N. (2003). Risk factors for depression among elderly community subjects: A systematic review and meta-analysis. *American Journal of Psychiatry*. 160(6):1147–1156.

Chen, J. H., Bierhals, A. J., Prigerson, H. G., Kasl, S. V., Mazure, C. M., & Jacobs, S. (1999). Gender differences in the effects of bereavement-related psychological distress on health outcomes. *Psychological medicine*, 29(2), 367–380.

Cheng ST, Fung HH, Chan ACM. (2009). Self-perception and psychological well-being: the benefits of foreseeing a worse future. *Psychology and Ageing*. 24(3):623–633.

Chou KL, & Chi I. (2000).Comparison between elderly Chinese living alone and those living with others. *Journal of Gerontological Social Work. 33:51–66.*

Clayton, P. (1979). The Clinical Morbidity in the First Year of Bereavement: A Review. *Comprehensive Psychiatry*, 14(2), 151–157.

De Jong Gierveld J., Kamphuis (1985). The Development of a Rasch-type loneliness scale, *App Psychol Meas* 9 : 289-299.

Doubova SV, Pérez-Cuevas R, Espinosa-Alarcón P, Flores-Hernández S. (2010). Social Network Types and Functional Dependency in Older Adults in Mexico. *BMC Public Health*. 10:104..

Dykstra PA. (2009). Older adult loneliness: Myths and realities. *European Journal of Ageing*. 6:91-100

Ferraro, K.F. (1980). Self ratings of Helath Among the old and old, *Journal of Health & Social Behaviour*, 21 : 377-383.

Gahler, M. (2006). To divorce is to die a bit: A longitudinal study of marital disruption and psychological distress among Swedish women and men. *The Family Journal*, 14(4), 372–382.

Gee EM. (2000). Living arrangements and quality of life among Chinese Canadian elders. *Social Indicators Research*. 51(3):309–329.

Global Health Estimates (GHE) (2019). Institute of Health Metrics and Evaluation. Global Health Data Exchange (GHDx). https://vizhub.healthdata.org/gbd-results

Grundy E. (2006).Ageing and Vulnerable Elderly People: European Perspectives. *Ageing Society*26:105-34

Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: a review of twenty-seven community studies. *Journal of health and social behavior*, 38(1), 21-37

Idler, E. L. & S. Kasl. (1991). Health Perceptions and Survival: Do Global Evaluations of Health Status Really Predict Mortality? *Journal of Geronotology* 46(2):S55-65.

Iwasa H, Kawaai C, Gondo Y, Inagaki H, Suzuki K. (2006). Subjective well-being as a predictor of all-cause mortality among middle-aged and elderly people living in an urban Japanese community: a seven-year prospective cohort study. *Geriatrics & Gerontology International. 6:216–622.*

Ko Hana , Yeon-Hwan Park , BeLong Cho , Kyung-Choon Lim , SunJu Chang , YuMi Yi , Eun-Young Noh , So-Im Ryu (2019). Gender differences in health status, quality of life, and community service needs of older adults living alone, *Archives of Gerontology and Geriatrics*, 83, July–August, 239–245.

Kugbey N, Nortu TA, Akpalu B, Ayanore MA, Zotor FB. (2018). Prevalence of geriatric depression in a community sample in Ghana: analysis of associated risk and protective factors. *Archives of Gerontology and Geriatrics*. 78:171176.

Loptata, H. Z. (1980). Loneliness in widowhood. In J. Hartog, J.R. Audy & Y.A. Cohen (Eds.). *The Anatomy of Loneliness*. International Universities Press. London. 237-258.

Lowenthal, M. & Robinson, B. (1976). Social networks and isolation. In Binstock, R. and Shanas, E. (Eds.). *Handbook of Ageing and the Social Sciences*. Van NostrandReinhold, New York.

Madison D., Viola A. (1968). The Health of Widows in the Year Following Bereavement. *Journal of Psychosomatic Research*, 12(4), pp. 297-306

Maeng-je (2009). Single Elderly People are More Likely to Suffer Dementia. Ministry of Health, Welfare and Family Affairs. Retrieved from www.useoul.edu/research/highlights?bbsidx=72271&page=39

Mare, R. D. & Alberto, P. (1988). Couple Models for Socioeconomic Effects on the Mortality of Older Persons. Centre for Demography and Ecology Working Paper 88-07.University of Wisconsin-Madison.

Mui AC.(1998). Living alone and depression among older Chinese immigrants. *Journal of Gerontological Social Work. 30:147166.*

Nair, P.S. (1989). The Aged in Rural India: A Study of the Socio-Economic and Health Profile. In S.N. Singh, M.K. Premi, P.S. Bhatia and A. Bose (Eds.), *Population Transition in India*, vol.2, B.R. Publishing, Delhi.

Pezzin, L.E. & Schone, B.S. (1999). Parental Marital Disruption and Intergenerational Transfers: An Analysis of Elderly Parents Living Alone and Their Adult Children. *Demography*, 36(3), 287–298.

Rajkumari B, & Nula P. (2017). Patient's satisfaction with care in a government health facility in North East India: A cross-sectional study. *Journal of Medical Society* 2017;31:94-8.

Rose, A. (1965). The subculture of the ageing: a framework for research in social gerontology. In A. Rose and W. Peterson (Eds.). *Older People and Their Social World*. F. A. Davis Co., Philadelphia. pp. 3–16.

Russell, D. Peplan, L.A. & Cutrona, C.E. (1980). The Devised UCLA Loneliness Scale : Current and Discnminate Validity evidence, *Jr. of Personality and social Psychology* 39, 472-480.

Sengupta P, & Benjamin AI.(2015). Prevalence of depression and associated risk factors among the elderly in urban and rural field practice areas of a tertiary care institution in Ludhiana. *Ýndian Journal of Public Health*. 59(1):3.

Singh, A., & Misra, N. (2009). Loneliness, depression and sociability in old age. *Industrial Psychiatry Journal*, 18(1), 51–55.

Srivastava S, Debnath P, Shri N, Muhammad T. (2021). The association of widowhood and living alone with depression among older adults in India. *Scientific Reports*. 11(1):21641.

Thuen F., Reime M. & Skrautvoll K. (1997). The Effect of Widowhood on Psychological Well-being and Social Support in the Oldest Groups of the Elderly. *Journal of Mental Health*, 6(3), 265-274

Victor, C. R., Bond, B., and Bowling, A. (2000). Being Alone in Later Life: Loneliness, Social Isolation and Living Alone. *Reviews in Clinical Gerontology*, 10(4), 407–417.

Victor, C.R., Scambler, S., Bowling, A. & Bond, J. (2005). The Prevalence of Ageing and Risk Factors for Loneliness in Later Life: A Survey of Older People in Great Britain. *Aging and Society*, 25(3), 357-375

World Population Prospect (2022). Release note about significant differences in total population estimates for mid-2021 between 2019 and 2022 revisions. New York: United Nations Department of Economic and Social Affairs, Population Division; 2022.

Yaka E, Keskinoglu P, Ucku R, Yener GG, Tunca Z. (2014). Prevalence and risk factors of depression among community-dwelling elderly. *Archives of Gerontology and Geriatrics*. 59(1):150–154

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Feasibility and Safety of a Structured 8-week Progressive Yoga Protocol for Institutionalised Older Adults : Preliminary Findings from a Randomised Controlled Trial

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ABSTRACT

Yoga is increasingly recognised as a safe and beneficial practice for older adults, yet evidence from institutionalised populations remains limited. This study evaluated the design, feasibility, safety, and acceptability of a progressive, structured yoga protocol for 39 residents aged 60 to 79 years from four old-age homes in Northeast India. The 8-week protocol was delivered progressively, starting with 25-minute sessions four times a week and progressing to 60-minute sessions seven times a week. Attendance logs, session checklists, and safety monitoring forms were maintained throughout the programme. Outcomes assessed included adherence, protocol fidelity, safety (adverse events, medical consultations, pose adaptations), and acceptability based on informal participant and instructor feedback. It was found that all participants completed the full 8-week intervention (39/39; 100%) and attended all 44 scheduled sessions. The absence of

adverse events, injuries, or medical consultations provides significant reassurance regarding the safety of the yoga protocol. Minor pose adaptations were provided for 8 participants (20.5%) to address stiffness or balance issues, without interrupting session flow. This adaptability of the protocol to individual needs reassures about its potential for diverse populations. Progressive design was well tolerated, and both participants and instructors reported high levels of comfort, engagement, and satisfaction. Feedback was overwhelmingly positive: 100 per cent felt safe, 97 per cent felt comfortable, and 94 per cent would recommend the programme. Based on the present findings, it can be concluded that the structured, progressive yoga protocol is safe, feasible, and acceptable for older adults living in institutional care. The high adherence and positive acceptability outcomes underscore its potential as a replicable model for integration into geriatric wellness programmes. Future studies should assess long-term sustainability and clinical outcomes in larger and more diverse populations.

Keywords : Yoga, Older adults, Institutional care, Feasibility, Safety, Adherence

Traditionally, Indian society has relied on joint-family systems, in which older adults lived with children and grandchildren. In this arrangement, elders provided cultural continuity, childcare, and family guidance in return for care, financial support, and companionship. However, social and economic changes have weakened this structure. The migration of younger family members for education or employment, the shift from agrarian to urban-industrial lifestyles, and the growing influence of nuclear-family models have led to greater generational separation (Cheung, 2025). As a result, many older adults are no longer able to remain

in family homes. Admission to old age homes, once a rare occurrence, is becoming increasingly common. The reasons for institutionalisation vary but often include loss of primary caregivers, financial insecurity, childlessness, widowhood, neglect, or strained family relations. In Northeast India, including Manipur, additional factors, such as economic hardship, social instability, and limited access to healthcare further contribute to the rise of old-age homes (Krupp *et al.*, 2025).While institutional care provides shelter and basic needs, residents of old age homes often experience vulnerabilities distinct from community-dwelling peers. Compared with older adults living with families, those living alone may face greater loneliness, loss of autonomy, and reduced opportunities for meaningful engagement (Martens, 2025). Sedentary routines and lack of physical activity accelerate functional decline. Chronic diseases such as hypertension, arthritis, and diabetes are common, but resource constraints may limit management. Cognitive decline, anxiety, and depression are frequently reported in such settings, often linked to social isolation and feelings of abandonment (Ward, 2025). Therefore, studies suggest a pressing need for interventions that go beyond food and medical care to address holistic well-being. Physical activity programmes are critical as they support mobility, independence, and emotional health. However, most facilities lack structured, sustainable wellness activities tailored to older residents.

Yoga, originating in India, offers a culturally resonant approach that integrates physical movement, breathing, and meditation. Evidence suggests that yoga can enhance balance, flexibility, muscular strength, cognitive function, and emotional resilience in older adults (Chen, 2024; Huang *et al*., 2025). It has the advantage of being highly adaptable to varying functional levels, requiring minimal equipment, and resonating with the cultural and spiritual background of Indian elders (Kaushik *et al.,* 2025).

Despite its promise, the way yoga has been studied and implemented among older populations presents challenges. Most research focuses on relatively healthy, community-dwelling adults. Protocols typically involve fixed sessions lasting 60–90 minutes, conducted two or three times per week over 12–26 weeks (Youkhana *et al.,* 2016). These formats assume participants can sustain long sessions from the outset and maintain engagement for months. For institutionalised elders—who often have limited physical capacity, lower motivation, and fewer external incentives—such assumptions are unrealistic. High dropout rates, ranging from 10% to 40%, are standard in geriatric yoga studies (Martens, 2025). Exercise science emphasises the principle of progressive overload: gradual increases in intensity, frequency, or duration allow safe adaptation and reduce attrition (Paramashiva *et al.,* 2025). This principle has been underutilised in yoga research. Progressive yoga programmes, starting with brief and straight forward sessions and gradually increasing in complexity, may provide a more suitable model for institutionalised elders. Such protocols would enable residents to build confidence and stamina, minimise risks, and enhance their mood. In addition, very little research has examined yoga interventions within institutional elder care in India, and almost none in the Northeast region. However, this context is precisely where culturally acceptable, low-cost, and group-based wellness programmes are most urgently needed, and our study aims to address this gap.

Against this backdrop, the present pilot study was conducted in four government-registered old-age homes in the Imphal Valley, Manipur. Its aim was not to test clinical outcomes, but rather to establish whether a structured progressive yoga protocol could be delivered feasibly, safely, and acceptably in this population. Feasibility was assessed through attendance and completion, safety

through monitoring of adverse events and adaptations, and acceptability through structured participant feedback. No clinical efficacy outcomes were measured in this phase, as the primary goal was to prepare for larger-scale trials.

Method

Sample

Thirty-nine participants, aged 60 years and above, were selected from four government-registered old-age homes in the Imphal Valley, Manipur, between February and April 2025, for this pilot study.

Participants and Recruitment

Participants were recruited through direct engagement with residents and facility staff. A comprehensive socio-demographic data sheet was used to assess eligibility across multiple domains.

Only elderly persons who had been living there for a minimum of three months, could perform daily activities with or without assistance, and had cognitive capacity sufficient to comprehend and follow simple verbal instructions in Hindi or Manipuri were selected. Medical clearance from the attending physician at the facility was mandatory prior to enrollment. Individuals with chronic medical conditions were permitted to participate, provided that these conditions were clinically stable and under appropriate medical management.

Intervention Protocol: Progressive Yoga Structure

The eight-week progressive yoga protocol was developed in consultation with experienced yoga instructors trained in geriatric adaptations. The intervention specifically challenged prevalent assumptions in geriatric yoga research through its adaptive, individualised structure, as depicted in Table 1.

Table 1

Detailed Yoga Intervention Protocol (Integrated Week-wise Progression)

Week	Total Duration / Frequency	Yogic Practices per Session	Specific Techniques	Allocated Time (min)
Week 1	25 min, 4 days/week	Opening Prayer	Gayatri Mantra, Shanti Mantra	4
		SukshmaVyayama (×4)	Griva, Manibandha, Anguli, Janu	5
		Asanas (×2)	Tadasana, Pawanmuktasana	5
		Pranayama	Nadishuddhi (2 rounds)	4
		Meditation	JyotiTrataka	5
		Closing Prayer	Shanti Mantra	2
Week 2	30 min, 4 days/week	Opening Prayer	Gayatri Mantra, Shanti Mantra	4
		SukshmaVyayama (×5)	Dhriti, Bhuja Bandha, KarPrisht, Udar, Jangha	6
		Asanas (×3)	Tadasana, Vakrasana, Setubandhasana	6
		Kriya	Kapalbhati (10 strokes)	3
		Pranayama	Surya Anuloma Viloma (4 rounds)	5
		Meditation	Nadanusandhana (OM meditation)	4
		Closing Prayer	Shanti Mantra	2
Week 3	35 min, 5 days/week	Opening Prayer	Gayatri Mantra, Shanti Mantra	4
		SukshmaVyayama (×5)	Smaran, Koni, Kartal, Kati, Padmal	7
		Asanas (×4)	Tadasana, Konasana, Bhujangasana, Savasana	8
		Pranayama	Chandra Anuloma Viloma (4 rounds)	5
		Meditation	JyotiTrataka	7
		Closing Prayer	Shanti Mantra	4

Week 4	40 min, 5 days/week	Opening Prayer	Gayatri Mantra, Shanti Mantra	4
		SukshmaVyayama (×5)	Medha, Bhujbali, AnguliMul, Kundalini, GulphaPada	8
		Asanas (×5)	Tadasana, Marjariasana, ArdhaShalabhasana, Utkatasana, Makarasana	10
		Kriya	Kapalbhati (20 strokes)	3
		Pranayama	Bhastrika (10 strokes), Bhramari (3 rounds)	6
		Meditation	Nadanusandhana (OM meditation)	7
		Closing Prayer	Shanti Mantra	2
Week 5	45 min, 6 days/week	Opening Prayer	Gayatri Mantra, Shanti Mantra	4
		SukshmaVyayama (×6)	PurnaBhuja, Kohni, Udar (variation), Padmal, Kartal, Kati	9
		Asanas (×6)	Tadasana, ArdhaMatsyendrasana, Shashankasana, Bhujangasana, Setubandhasana, Savasana	12
		Kriya	Kapalbhati (30 strokes)	3
		Pranayama	Bhastrika (15 strokes), Bhramari (5 rounds)	7
		Meditation	JyotiTrataka	8
		Closing Prayer	Shanti Mantra	2
Week 6	50 min, 6 days/week	Opening Prayer	Gayatri Mantra, Shanti Mantra	4
		SukshmaVyayama (×6)	Dhriti, SkandhaBahumool, Netra, Kapol, Vakshasthala, Padmal	10
		Asanas (×7)	Tadasana, Utkatasana, ArdhaChakrasana, Makarasana, Viparitakarani, Bhujangasana, Savasana	14
		Kriya	Kapalbhati (40 strokes)	3
		Pranayama	Anuloma Viloma (6 rounds), Bhramari (6 rounds)	8
		Meditation	Nadanusandhana (OM meditation)	9
		Closing Prayer	Shanti Mantra	2

Week 7	55 min, 7 days/week	Opening Prayer	Gayatri Mantra, Shanti Mantra	4
		SukshmaVyayama (×6)	Griva, Bhuja Bandha, Kartal, Kati, Padmal, Vakshasthala	10
		Asanas (×8)	Tadasana, Marjariasana, Ardha Chakrasana, Ardha Ushtrasana, Bhujangasana, Utkatasana, Viparitakarani, Savasana	16
		Kriya	Kapalbhati (50 strokes)	3
		Pranayama	Bhastrika (20 strokes), Bhramari (6 rounds)	8
		Meditation	JyotiTrataka	12
		Closing Prayer	Shanti Mantra	2
Week 8	60 min, 7 days/week	Opening Prayer	Gayatri Mantra, Shanti Mantra	4
		SukshmaVyayama (×6)	Smaran, Medha, Udar (advanced), Netra, Kapol, Vakshasthala	10
		Asanas (×9)	Tadasana, Konasana, Utkatasana, ArdhaChakrasana, Marjariasana, Bhujangasana, ArdhaUshtrasana, Viparitakarani, Savasana	18
		Kriya	Kapalbhati (60 strokes)	3
		Pranayama	Anuloma Viloma (6 rounds), Bhramari (6 rounds)	9
		Meditation	Nadanusandhana (OM meditation)	12
		Closing Prayer	Shanti Mantra	2

Ethics approval was obtained from the Institutional Ethics Committee of Manipur University (Ref. No. MU/IHEC/2024/18).

Instructor Training and Safety Protocols

Four certified yoga instructors (M.Sc. in Yoga) completed an intensive 12-day training programme covering geriatric physiology and common health conditions, contra-indications and safety precautions, chair yoga adaptations and modification techniques, emergency response procedures, protocol standardisation and documentation, and cultural sensitivity in institutional settings.Instructor-to-participant ratios were maintained at 1:10 or better. All postures were adaptable to seated positions with chair support for participants with mobility limitations. Safety equipment included sturdy chairs with backs, yoga blocks, bolsters, straps, and non-slip mats.Comprehensive emergency protocols were established in collaboration with the facility's medical staff, including immediate response procedures, medical consultation pathways, and incident documentation systems.

Outcome Measures

Primary Feasibility Outcomes:

1. Protocol completion rate (target: $\geq$ 80%)
2. Session attendance rate (target: $\geq$ 70%)
3. Dropout rate (target: < 30%)
4. Number and type of required protocol adaptations

Safety Outcomes:

1. Adverse events during sessions (structured incident reports completed by instructors)
2. Injuries related to participation (facility medical record review)
3. Medical consultations required (nursing staff reports)
4. Session interruptions due to participant fatigue or discomfort

Acceptability Outcomes:

1. Structured participant feedback questionnaire with 13 Likert-scale items assessing physical comfort, emotional experience, instruction clarity, and programme satisfaction

2. Three open-ended questions exploring participant experiences, challenges, and suggestions
3. Willingness to continue program participation
4. Willingness to recommend theprogram to other residents

Data Collection Procedures

Trained research staff maintained detailed daily attendance logs using standardised forms. All absences were documented with specific reasons (medical appointments, illness, family visits, personal choice). Protocol completion was defined as attending at least 80 percent of scheduled sessions and completing the full eight-week duration. A comprehensive safety monitoring system included instructor safety checklists completed after each session, weekly safety review meetings between research staff and facility coordinators, established emergency response protocols in collaboration with the facility's medical teams, and a monthly compilation and review of safety data. At programme completion, trained research assistants conducted structured feedback interviews with all participants. For individuals with visual or literacy limitations, questions were read aloud, and responses were recorded verbatim.

Statistical Analysis

Given the feasibility focus, analyses were primarily descriptive with appropriate confidence intervals calculated using the Wilson score method for proportions. Completion rates, attendance rates, and acceptability percentages were reported with 95 percent confidence intervals.

Pre-specified success criteria included a protocol completion rate T $\geq$ 80 %, an attendance rate $\geq$ 70 %, a dropout rate < 30 %, and an adverse event rate < 5 %. Acceptability was considered adequate if at least 70 per cent of participants expressed satisfaction across key domains.Qualitative feedback from open-ended questions was analysed using fundamental content analysis to identify common themes and suggest protocol refinements.

Results

Participant Profile

The baseline sociodemographic and clinical details of the yoga participants are shown in Table 2. The mean age was 71.8 years, and 59 % of participants were women. Most had basic literacy (71.8%), stable chronic conditions (71.8%), and normal BMI (79.5%). All participants were physically independent at baseline, with an average SPPB score of 6.0 and a WHO-5 well being score of 59.3.

Table 2.

Sociodemographic and Clinical Characteristics of Yoga Group Participants (n=39)

Characteristic	Yoga Group (n = 39)
Age (years), mean ± SD	71.8 ± 5.6
Age categories, n (%)	
% 60–65 years	12 (30.8%)
% 66–75 years	21 (53.8%)
% ≥ 76 years	6 (15.4%)
Sex, n (%)	
% Female	23 (59.0%)
% Male	16 (41.0%)
Education level, n (%)	
% Basic literacy	28 (71.8%)
% Secondary or higher	6 (15.4%)
% Illiterate	5 (12.8%)
Previous occupation, n (%)	
% Domestic/Govt/Private work	24 (61.5%)
% Agriculture/Daily wage	14 (35.9%)
% Unemployed	1 (2.6%)
Marital status, n (%)	
% Married	14 (35.9%)
% Widowed	21 (53.8%)
% Single/divorced	4 (10.3%)

Duration in facility (years), mean ± SD	3.1 ± 1.8
Duration categories, n (%)	
% Less than 1 year	4 (10.3%)
% 1 to <2 years	7 (17.9%)
% 2 to <4 years	17 (43.6%)
% 4 years or more	11 (28.2%)
Source of financial support, n (%)	
% Pension/own savings	17 (43.6%)
% Family support	11 (28.2%)
% Facility-dependent	11 (28.2%)
Chronic conditions (stable), n (%)	28 (71.8%)
Current medications (1–2), n (%)	28 (71.8%)
BMI – Normal weight, n (%)	31 (79.5%)
Physically independent, n (%)	39 (100%)
Mini-Cog™ score, median (IQR)	2.0 (2.0–3.0)
SPPB score, mean ± SD	6.0 ± 1.1
WHO-5 Wellbeing, mean ± SD	59.3 ± 7.0
Grip strength (kg), median (IQR)	15.5 (13.2–26.9)

Footnotes : Data are presented as mean ± SD for normally distributed continuous variables, median (IQR) for non-normally distributed variables, and n (%) for categorical variables. SPPB = Short Physical Performance Battery; WHO-5 = World Health Organisation Five Well-Being Index; BMI = Body Mass Index; IQR = Interquartile Range.

Feasibility Outcomes and Adherence Outcomes

All 39 participants completed the full 8-week intervention (39/39; 100%), and attendance was 100% across all 44 scheduled sessions. No adverse events, injuries, or medical consultations were reported. Minor pose adaptations were provided for 8 participants (20.5%) to address stiffness or balance issues, without interrupting session flow, as depicted in Table 3.

Table 3

Feasibility Outcomes (Yoga Group, n=39)

Indicator	Yoga Group (n = 39)	Description
Protocol completion	39 (100%)	All participants completed the full 8-week protocol
Total sessions delivered	44	8 weeks × progressive frequency (3–7 days/week)
Sessions completed	44/44 (100%)	All sessions were conducted as planned
Attendance e"90%	39 (100%)	All participants attended e"90% of sessions
Dropouts	0 (0%)	No participants withdrew or were lost to follow-up
Early terminations	0 (0%)	No sessions ended prematurely due to fatigue or discomfort

Footnotes : Data were collected from instructor-maintained attendance logs and session delivery records during the 8-week intervention. Adherence was defined as attending at least 90 percent of scheduled sessions. All sessions were delivered as planned, with no interruptions or cancellations.

Safety Outcomes

No adverse events, injuries, falls or health complications occurred. Adaptations were required for 8 participants (20.5%; 95% CI: 9.3–36.5%), primarily for chair-supported standing postures, as shown in Table 4.

Table 4

Safety Monitoring Outcomes (Yoga Group, n=39)

Parameter	Yoga Group (n = 39)	Description
Adverse events	0 (0%)	No injuries, falls, or medical incidents reported
Yoga-related injuries	0 (0%)	No musculoskeletal complaints or strain

Excessive fatigue	0 (0%)	No sessions interrupted due to exhaustion
Medical consultations	0 (0%)	No additional medical attention required during study
Pose adaptations provided	8 (20.5%)	Minor modifications for joint stiffness or balance limitations
Use of chair support	Available to all	Used as needed for seated postures and transitions
Sessions modified for comfort	Yes	Instructors adjusted pacing and posture depth as needed

Footnotes : Safety data were recorded using standardised session-monitoring forms, completed by trained instructors. Pose adaptations were documented when participants required modifications due to joint stiffness, balance limitations, or discomfort. Chair support was available throughout and used as needed. No adverse events or medical consultations occurred during the study period.

Acceptability Outcomes

All 39 participants completed the feedback questionnaire. Acceptability was high: 97 percent felt physically comfortable, 100 percent felt safe, 92 percent expressed a desire to continue, and 95 percent would recommend yoga to their peers, as depicted in Table 5.

Table 5

Acceptability Outcomes (Yoga Group, n=39)

Qualitative themes:

1. **Gradual progression** increased confidence.
2. **Cultural familiarity** (mantras, meditation) enhanced comfort.
3. **Group practice** reduced loneliness and encouraged motivation.

Summary of Participant Feedback Questionnaire Responses

Item	% Agree or Strongly Agree
I felt physically comfortable during the yoga sessions.	97%
I felt emotionally relaxed and at ease during the sessions.	95%
The instructor made me feel safe and supported.	100%
I felt confident performing the movements and postures.	92%
I appreciated the use of chair support or pose modifications.	94%
The instructions were easy to understand.	95%
The pace of the sessions was appropriate for me.	92%
I was able to follow along without feeling rushed or confused.	90%
The instructor clearly and concisely explained the purpose of each practice.	93%
I looked forward to attending the yoga sessions.	91%
I felt more active and alert after the sessions.	89%
I want to continue practising yoga in the future.	92%
I would recommend this program to others in the facility.	94%

Footnotes : Responses were collected using a structured 16-item feedback questionnaire administered at the end of the 8-week intervention. Items 1–13 were rated on a 5-point Likert scale (Strongly Disagree to Agree Strongly). Percentages reflect the proportion of participants who selected "Agree" or "Strongly Agree" for each item. All participants completed the questionnaire.

Discussion

This study demonstrates that a progressive yoga protocol, culturally integrated with chanting and traditional meditation, is feasible, safe, and acceptable for institutionalised older adults in Northeast India. High completion and attendance rates contrast with dropout rates of 10–40% reported in studies that use fixed protocols (Martens, 2025). The progressive structure likely supported adaptation and reduced fatigue, consistent with principles of graded exercise (Paramashiva *et al.,* 2025). Findings align with reviews reporting yoga's benefits for balance, mobility, and mood

in older adults (Huang *et al.,* 2025; Sivaramakrishnan *et al.,* 2019). Safety outcomes were reassuring, with no adverse events, consistent with results from adapted and chair-based yoga studies. The cultural integration may have contributed to the high acceptability, consistent with findings that culturally grounded interventions increase adherence(Krupp *et al.,* 2025). The group-based format also offered psychosocial benefits. Social interaction is crucial in combating loneliness among institutionalised elders (Cheung, 2025). Participants described the sessions as enjoyable and motivating.

Conclusion

This pilot study confirms the feasibility, safety, and acceptability of an eight-week progressive yoga protocol for institutionalised older adults in Manipur. The findings underscore the need for larger trials to validate further yoga's potential as a practical, culturally grounded wellness intervention in Indian elder care. It is also worth noting that this study is based on a small sample and a single geographic area. It was of short duration; therefore, its sustainability was not thoroughly tested.The study lacked a control group and thus could not investigate the psychosocial effects on the subjects.

References

Chen (2024). Neurobiological and anti-ageing benefits of yoga. *Sport Med Ageing*, 5, 44–56.

Cheung (2025). Yoga in Older Adults with Chronic Conditions: A Critical Review. *Consult*360, 30, 33–40.

Huang, T.C., Li, C. and Hsieh, C.Y. (2025): Effects of yoga on fall-related physical functions for older women: systematic review. *Healthcare,* 13, 124.

Kaushik, M., Yadav, A., Upadhyay, A., Gupta, A., Tiwari, P., Tripathi, M. & Dada, R. (2025). Yoga an integrated mind body intervention for improvement in quality of life in individuals with Alzhermer's Disearve at their caregivers, *Front Aging* 1449485.

Krupp, K., Muralidhan, K., Behal, A., Jaykrishna, P., Srinivas, V., Ninaiah, N., Begum, F., Edwards, DRV., Edwards, TL., Pereira, P., Madhivanan, P., & Shidhaye, R. (2025). Policy implications of integrating yoga for healthy ageing in India. *Geriatr Nurs*, 65, 103495.

Martens, N.L. (2025). Yoga interventions involving older adults: integrative review. *J Gerontol Nurs, 4*8, 43–52.

Paramashiva, P.S., Sukumar, S., Shettigan, D., and Kadavigere, R. (2025). Comparing effects of yoga and exercise on vascular function in older adults. *J Ageing Health*, 37, 200–210.

Sahoo, U., Sharma, S., Chari, H. and Nayak, SR. *et al.* (2023). Rural–urban differentials in yoga/mindfulness practice among older adults in India. *Sci Rep*, 13, 22095.

Sivaramakrishnan, D., Fitzsimons, C., Kelly, P., Ludwrg, K., Mutrie, N., Saunders, D.H. and Baker, G., (2019). The effect of yoga compared to active and inactive contracts on physical function and health related quality of life in older adults-systematic review mata-analysis of randomised controlled trials. *Int J. Brhav Nutr Phy. Ac,* 16(1)33.

United Nations (2019). *World Population Prospects 2019*. UN, New York.

Ward, L. (2025). Perceptions and experiences of chair-based yoga by older adults. *J Aging Res,* 45, 223–232.

Youkhana, S., Dean, CM., Wolef, M., Sherrington, C. and Tiedmann, A. (2016). Yoga based exercise improves balance and mobility in people aged 60 and over : A systemate review and meta-analysis, *Age Ageing* 45(1) : 21-9.

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Strength and Mobility in Older Adults : Assessing Handgrip, Timed Up and Go, and Functional Independence

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ABSTRACT

Handgrip strength (HGS) and walking speed, as this study reveals, are not just key indicators of functional health but also promising tools for early detection of dependency, fall risk, sarcopenia, and frailty in older adults. This cross-sectional study, involving 1107 older adults aged 60 years or older, investigated HGS and timed up-and-go (TUG) time in relation to age and gender, and their association with activities of daily living (ADL). Participants' grip strength was measured with a JAMAR Plus digital handgrip dynamometer, and walking speed was assessed using the TUG test. Descriptive statistics, means and percentiles, and binomial logistic regression were conducted. A receiver operating Characteristic (ROC) curve was built to analyse HGS and TUG patterns, associations, and predictive ability using SPSS version 23.0. The study participants' mean HGS and TUG times were 15.89 ± 6.48 kg and 12.62 ± 3.86 seconds, respectively. Men

showed significantly better HGS (18.88±6.76 kg) and TUG (12.3±3.45 sec) performance than women (HGS: 13.7±5.3 kg, TUG: 12.86±4.13 sec) ($p < 0.05$), highlighting the pronounced gender differences in these indicators. Handgrip strength decreased, while TUG time increased with age in both men and women, highlighting the age-related changes in these measures. Handgrip strength was significantly associated with TUG time across age and gender categories ($p<0.05$). TUG was significantly associated with ADL disability independent of age, gender, and comorbidity (odds ratio [OR]:1.88, 95 per cent confidence interval [CI]:1.36-2.59). TUG demonstrated fair accuracy in distinguishing between men and women with and without ADL difficulty (Area Under the Curve [AUC]: >0.60). The results underscore the importance of establishing population-specific cut-off values for HGS and TUG. Based on these findings, it is recommended that screening for HGS and TUG irregularities be used to detect potential functional decline in older adults at an early stage, offering hope for the future of gerontology research.

Keywords : Functionality, Frailty, Muscle strength, Sarcopenia.

The ageing population in India is on the rise. According to UNFPA (2023), demographic projections the population aged 60 and above in India is expected to rise from 153 million in 2023 to 347 million by 2050(United Nations Population Fund-India, 2023). As people age, significant changes occur, with walking speed and handgrip being key indicators of strength and mobility (Ferrucci *et al.*, 2016; Kemala Sari *et al.*, 2025). Handgrip strength (HGS) reflects overall muscle strength, which is crucial for tasks such as opening jars, gripping utensils, and buttoning clothes. Lower

handgrip strength indicates potential difficulty with in Activities of Daily Living (ADLs) which can impact performance (Zasadzka *et al.*, 2023). The timed up-and-go (TUG) test measures the time taken to stand up from a chair, walk a short distance, turn around, and sit back down. A longer TUG time indicates impaired mobility and balance, significantly affecting the ability to perform various ADLs (Liwsrisakun *et al.*, 2020; Sallinen *et al.*, 2010). Both handgrip strength and TUG scores are widely used as screening tools to identify older adults who may be at risk for difficulties performing Activities of Daily Living, as they can indicate potential limitations in muscle strength and functional mobility, respectively (Lee *et al.*, 2020; Zasadzka *et al.*, 2023).

Low handgrip strength indicates poor muscle strength, reduced physical performance, and a decline in body function, with a high predictive value for adverse outcomes (Rijk *et al.*, 2016). Furthermore, individuals with low handgrip strength had a higher mortality risk compared to those with normal handgrip strength (Y. Wang *et al.*, 2022). Declining handgrip strength as people age is significantly associated with reduced mobility, indicating that a weaker grip can signal a higher risk of difficulty performing daily activities and limitations in movement, making it a key indicator of potential functional decline in older adults (Delinocente *et al.*, 2021). Meta-analyses for provide evidence for the validity of handgrip strength as a predictor of age-related declines in cognition, mobility, functional status, and mortality among community-dwelling older adults (Valenzuela *et al.*, 2020). Walking speed, often measured using TUG time, is a physical performance test complementary to hand grip strength and commonly used tool for screening fall risk. It is also considered a strong predictor of short-term mortality (Chua *et al.*, 2020). TUG scores indicate decreased mobility and potential functional decline, making them a valuable screening tool for overall health assessment and identifying individuals who need further evaluation or interventions to improve balance and gait (Beauchet *et al.*,

2011). Furthermore, handgrip strength and TUG time are key complementary parameters in assessing geriatric syndromes, particularly frailty and sarcopenia (Chen *et al.*, 2020; Fried *et al.*, 2001).

Researchers often use these measures to study the relationship between muscle strength, balance, and overall health outcomes in ageing populations. While handgrip strength assesses upper body strength, the TUG test evaluates a more complex movement sequence involving standing up, walking a short distance, and sitting back down, providing a broader view of mobility limitations (Wiœniowska- Szurlej *et al.*, 2019).Therefore, HGS and TUG test results are considered strong indicators of an individual's ability to perform Activities of Daily Living, with lower handgrip strength and slower TUG times generally signifying greater difficulty in performing everyday tasks. The studies suggest that regular handgrip strength assessments, as a simple screening tool, and other measures, such as functional mobility tests,could enhance predictive accuracy for certain geriatric conditions in clinical practice (X. Wang *et al.*, 2016). Studies also suggest that when monitoring the effectiveness of interventions to improve mobility and strength in older adults, analysing both handgrip strength and TUG test results can provide a more complete picture of progress.

In countries where the older population is experiencing exponential growth, understanding the patterns of HGS and TUG, as well as their relationship with ADL ability, can provide valuable insights for preserving the functional health of the geriatric population. However, few studies from India have examined the association between handgrip strength and walking speed in older adults across age groups and genders, despite substantial differences. Therefore, the researchers aimed to examine normative values for handgrip strength and walking speed, specifically Timed Up and Go time, in older Indian adults across different age and gender groups. Furthermore, the researchers investigated the relationships among HGS, TUG, and ADL in older adults in India.

Method

Study design : The study was a cross-sectional survey conducted in Pune, a city in western Maharashtra, India. The city has a population exceeding 4 million and is divided into 15 administrative wards. Out of fifteen wards, seven were selected randomly for data collection. Community-dwelling men and women aged $\geq$ 60 years were included in the study. The sample size for population proportion was calculated using data from the 2011 census for the city of Pune. With a 95 per cent confidence interval and 80 per cent power, the design effect of 4, sample sizes was calculated to be 1152. Participants without upper and lower limb injury or deformity were considered for the present analysis. After cleaning for incomplete and missing values, 1107 records were included in the present study.

Data collection tools and techniques : Data were collected using a pre-tested structured questionnaire. Each participant's primary demographic information, including age, gender, marital status, education, and brief medical history,was recorded.

Measurement of Handgrip Strength (HGS) : Grip strength was measured using a Jamar Plus digital handgrip dynamometer. The participants were seated with their elbows by their sides and their wrists in a neutral position, flexed to the correct angle, using the hand dynamometer. The dynamometer handle was adjusted to the participant's palm size to ensure an optimal grip position. The participants were instructed to squeeze the dynamometer as hard as possible for 10 seconds. The dynamometer took 10 readings and averaged them to determine the final HGS value for each hand (right and left). The HGS value was recorded in kilograms. HGS of the dominant hand was used for analysis.

Timed Up and Go (TUG) test : Participants were instructed to sit in the chair with their back against the backrest, feet flat on the

floor, and hands resting on their lap. A researcher measured and marked a 3-meter distance from the chair and placed an identifiable stopper at the endpoint. Upon a verbal count of three, participants initiated the test by standing from the chair without support, walking 3 meters, turning around, and walking back to the chair to sit down. The time was recorded in seconds, from when the participant began to rise from the chair until they were fully seated again.

Difficulty with Activities of Daily Living (ADL) was assessed using the validated Pune Functional Ability Assessment Tool (Pune FAAT) (Nagarkar *et al.,* 2014). The tool assesses difficulty in daily activities on a four-point response scale using ten items: lifting, bending, squatting, walking, climbing, arising from bed/chair, toilet use, dressing, self-cleaning, and eating. The scores ranged from 10 to 40, with 10 indicating no functional difficulty, and higher scores indicating an increasing inability to perform tasks. Difficulty in one or more activities of daily living (ADLs) was considered a difficulty.

Ethics : Ethical approval for the study was obtained from the institutions Ethics Committee before data collection (SPPU/IEC/2019/ 50). Written informed consent was obtained from the participants after they were informed of the study's objectives, their role in the study, their right to withdraw, and the potential risks and benefits of participation. The information was provided in both verbal and written formats, in a language the participant understood (Marathi, Hindi, or English), and the participant was allowed to ask questions.

Statistical analysis : Descriptive statistics were computed to characterise the study population. Means and percentiles of HGS and TUG time were calculated for men and women across age categories. Sex-specific HGS below the 25th percentile and TUG above the 75th percentile were considered a cut-off for low HGS and poor TUG performance, respectively. The mean differences in HGS and TUG values across gender were computed using the Mann-Whitney test. A chi-square analysis was conducted to compare HGS with TUG

performance. Binomial logistic regression was used to investigate the relationships among poor HGS, TUG performance, and difficulty with ADL. The receiver operating characteristics (ROC) curves were constructed to assess the capacity of HGS and TUG measurements to discriminate between those with and without ADL difficulty.Results with $p < 0.05$ were considered statistically significant. All statistics were performed using IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp.

Results

The mean age of the participants was 70.77 ± 6.69 years, and 57.6 % were female. The handgrip strength (HGS) of the dominant hand, stratified by gender, is presented in Table 1. The mean HGS of the study population was 15.89 ± 6.48 kg. Males exhibited a significantly higher mean HGS (18.88 ± 6.76 kg) than females (13.70 ± 5.30 kg) ($p<0.05$). A decline in HGS was observed with advancing age; however, the reduction was more pronounced in men between the seventh and eighth decades, whereas in women, a significant decline was noted in the sixth and seventh decades.

Table 1

Age and gender stratified handgrip strength (in kg)

		Overall (N=1107)	60-69 year (n=498)	70-79 years (n=498)	≥80 years (n=111)
Male	Mean	18.88	19.63	19.06	16.50
	Standard deviation	6.76	6.92	6.80	5.69
	Percentile				
	5th	8.25	8.23	8.30	8.05
	25th	13.70	14.10	13.85	11.90
	50th	18.60	19.75	18.90	16.70
	75th	24.05	24.95	24.40	20.40
	95th	30.55	31.18	31.46	26.15
Female	Mean	13.70	14.51	12.89	12.12
	Standard deviation	5.30	5.40	5.21	3.73

	Percentile				
	5th	5.60	5.89	5.09	5.75
	25th	10.00	10.70	9.28	8.88
	50th	13.50	14.10	12.60	12.25
	75th	16.73	17.83	16.00	15.03
	95th	22.90	23.63	21.11	18.79
Total	Mean	15.89	16.16	15.87	14.84
	Standard deviation	6.48	6.39	6.78	5.46
	Percentile				
	5th	6.2	6.99	5.8	7.38
	25th	11.2	11.48	11	10.5
	50th	15.2	15.6	15.1	14.5
	75th	20	20.2	20.23	17.8
	95th	27.66	27.81	28	25.18

Table 2 depicts age and gender-stratified means and percentiles of TUG time. The mean TUG time of the study population was 12.62 ± 3.86 seconds. The average TUG time was significantly lower in men (12.3 ± 3.45 sec.) than in women (12.86 ± 4.13 sec.) ($p < 0.05$). Men demonstrated a lower mean TUG time than women across all age groups. TUG time increased with the advancing age of men and women. A pronounced increase in TUG time was observed between the seventh and eighth decade for both men and women.

Table 2

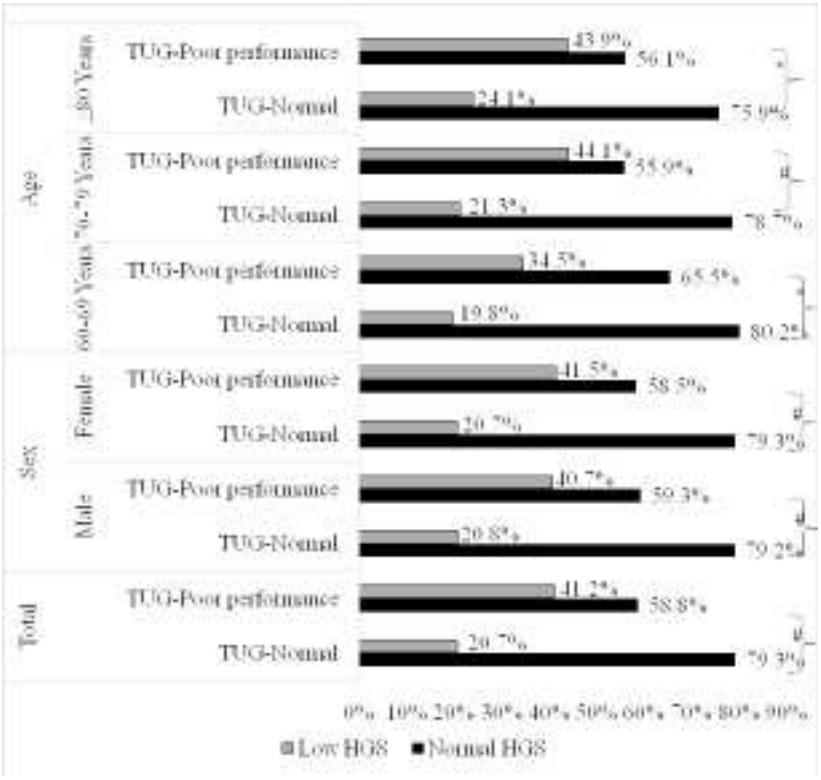
Age and gender stratified TUG time (in seconds)

		Overall (N=1107)	60-69 year (n=498)	70-79 years (n=498)	≥80 years (n=111)
Male	Mean	12.30	11.56	12.19	14.38
	Standard deviation	3.45	3.32	3.01	4.32
	Percentile				
	5th	8.25	8.00	8.70	9.11
	25th	10.00	9.50	10.10	11.15

	50th	11.40	10.75	11.63	13.46
	75th	13.60	12.50	13.50	16.40
	95th	19.80	17.90	17.88	22.46
Female	Mean	12.86	12.08	13.37	16.04
	Standard deviation	4.13	3.12	4.54	6.21
	Percentile				
	5th	8.80	8.60	9.10	9.97
	25th	10.40	9.97	10.90	11.82
	50th	12.00	11.41	12.30	14.74
	75th	14.23	13.30	15.03	17.76
	95th	19.99	18.00	20.60	30.61
Total	Mean	12.62	11.91	12.81	15.01
	Standard deviation	3.86	3.19	3.91	5.16
	Percentile				
	5th	8.74	8.26	8.80	9.24
	25th	10.20	9.90	10.40	11.30
	50th	11.74	11.10	12.00	14.00
	75th	14.00	13.00	14.20	16.90
	95th	19.86	17.91	19.25	25.66

Correlation analysis showed a significant negative correlation between TUG time and handgrip strength ($r=-0.228$, $p<0.001$). When comparing HGS and TUG performance (Fig. 1), older adults with normal TUG times exhibited significantly higher HGS scores. This trend was consistent across both sexes and all age groups. Like handgrip strength, the men in the study tended to have slightly faster TUG times (12.30 ± 3.45 sec.) than the women (12.86 ± 4.13 sec.). Hence, the participants were characterised based on their sex-specific quartiles of TUG time (Table 2).Participants in the slower quartiles of TUG time had weaker handgrip strength, and they were more likely to be older and female gender.

Figure 1: *Comparison of HGS performance with TUG performance*



*p<0.05, #p<0.001

Table 3 illustrates the relationship between HGS and TUG, as well as the difficulty in performing ADL functions. When studied separately, Low HGS and poor TUG performance were associated with higher odds of ADL difficulty independent of age, gender, and comorbidity. However, in multivariate analysis with HGS and TUG together adjusted to age, gender and comorbidity, only poor TUG (OR:1.88, CI:1.36-2.59) showed a significantly higher risk of ADL difficulty.

Table 3

Association of HGS and TUG with ADL difficulty

		Crude OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
HGS	Low	1.43 (1.08-1.91)*	1.39 (1.04-1.87)*	1.27 (0.95-1.71)	1.26 (0.93-1.69)
	Normal	Reference			
TUG	Poor performance	2.05 (1.51-2.78)**	1.95 (1.42-2.67)**	1.96 (1.44-2.67)*	1.88 (1.36-2.59)*
	Normal	Reference			

*p<0.05, **p<0.001

Model 1: HGS and TUG adjusted to age, gender and comorbidity separately

Model 2: HGS and TUG included together in the model

Model 3: HGS and TUG included together and adjusted to age, gender, and comorbidity

Figure 2: *Receiver operating characteristic curves with TUG to identify ADL difficulty.*

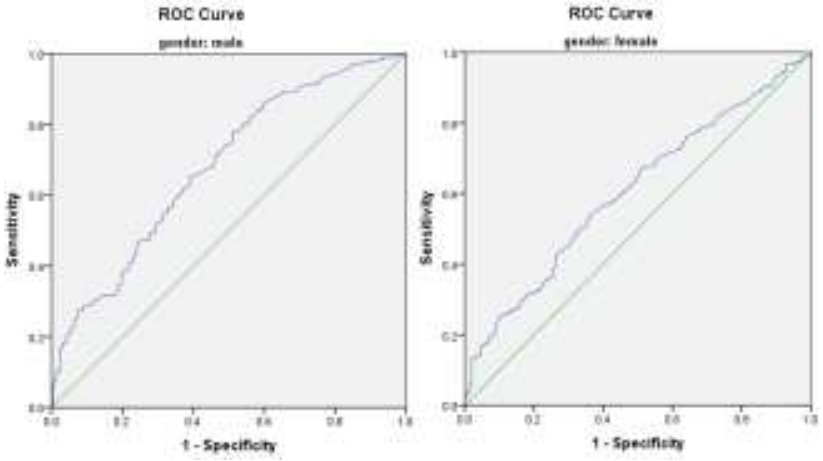


Table 4

TUG validity estimates to predict ADL difficulty

	Cut off	Sensitivity	Specificity	PPV	NPV	AUC (95% CI)
Male	10.44	80.0%	53.9%	62.6%	67.1%	0.680(0.631-0.728)**
Female	10.17	80.5%	72.6%	71.1%	38.8%	0.606(0.560-0.652)**

**p<0.001

The area under the curve (AUC)(AUC: 0.680 for men and AUC: 0.606 for women) indicated a fair accuracy of TUG in distinguishing those with and without ADL difficulty. However, HGS was not effective in predicting ADL difficulty in men (AUC = 0.423) and women (AUC = 0.479). The analysis showed that 80% of men and 80.5% of women with ADL difficulty can correctly identify with the cut-off values of 10.44 seconds in men and 10.17 seconds in women. Meanwhile, 53.9% of men and 72.6% of women without ADL difficulty can be correctly identified using the same cut-off values.

Discussion

The present study describes the normative values of HGS and TUG across age and gender, and further explains their association with ADL functionality. Men demonstrated better HGS and TUG performance than women across all age groups. Handgrip strength decreased, while TUG time increased, with increasing age in both men and women. Poor HGS and TUG performance were significantly associated with each other and with difficulty in ADLs. In the present study, TUG was a better predictor of ADL difficulty than HGS.

The mean HGS of the study participants was 15.89 ± 6.48 kg, with considerable differences observed across age and gender. As in previous studies, handgrip strength decreased with age in both men and women (Sundarakumar *et al.*, 2022; Vennu, 2023). In the current analysis, the average HGS among men was recorded as 18.88 ± 6.76 kg (25^{th} percentile = 13.7 kg); in women, it was 13.7 ± 5.3 (25^{th} percentile = 11.2 kg) which is lower than the cut-offs given by Asian Working Group on Sarcopenia, (< 28 kg in men and < 18 kg

in women) (Chen *et al.*, 2020).In a study by Sundara kumar *et al.* conducted among community-dwelling adults aged 45 years or older in rural Karnataka, the 25th percentile of HGS was 18.6 kg for men and 10.6 kg for women, respectively (Sundara kumar *et al.*, 2022). Similar to current findings, these values are lower than Asian cut-offs but higher than those observed in the current analysis. The difference can be partially attributed to difference in the instruments used and the age groups of the study participants. Handgrip strength is reported to vary by ethnicity and geographical region (Leong *et al.*, 2016). The observed differences underline the need for population-specific cut-offs for handgrip strength. Similar to previous studies, men in the current analysis demonstrated better TUG performance than women (mean TUG time : 12.3 ± 3.45 seconds in men and 12.86 ± 4.13 seconds in women), and TUG time increased with age (Chandhanayingyong *et al.*, 2024; Long *et al.*, 2020). The mean TUG values in the current study across the age groups 60-69, 70-79, and ≥80 years were 11.56, 12.19, and 14.38 seconds for men and 12.08, 13.37, and 16.04 seconds for women. This finding is comparable with the study among older adults from rural Karnataka, where mean TUG time was recorded as 11.6, 12.8, and 15.5 sec among men and 12.9, 14.8, and 16.9 sec among women aged 56-65, 66-75, and >75 years, respectively (Sundarakumar *et al.*, 2022). In older community-dwelling Thai adults aged 60 years or older, the mean TUG time was 11 seconds for women and 10 seconds for men (Chandhanayingyong *et al.*, 2024). In the Singaporean community-dwelling older adults aged 60-69 and ≥70 years, the times recorded were 8.42 seconds and 10.85 seconds in women, and 9.68 seconds and 10.33 seconds in men, respectively (Tan *et al.*, 2023). Current findings showed that older Indian adults are slower than their Asian counterparts.

The current study revealed a significant association between HGS and TUG, and poor performance on both HGS and TUG was associated with a significantly increased risk of difficulty with ADLs. Research indicates that handgrip strength can be a helpful indicator

of diverse health issues throughout the lifespan, including sarcopenia, frailty, and functional disability (Vaishya *et al.*, 2024). Handgrip strength is a valuable indicator of overall muscle health and strength in various muscle groups, including those in the lower limbs (Szaflik *et al.*, 2025). The current significant association between HGS and TUG, along with Strandkvist *et al.*, findings supports the link between handgrip strength and lower limb muscle strength (Strandkvist *et al.*, 2021). Research also indicates that muscle weakness is the most common modifiable risk factor for ADL difficulty (D. X. M. Wang *et al.*, 2020). Considering the observed association between HGS and TUG, incorporating muscular fitness testing into clinical practice is essential. Multidisciplinary exercise programs aimed at improving physical function would also be beneficial for reducing functional disability.

Further, the study identified the TUG test as a better predictor of ADL difficulty, with a significant association in a multivariate model adjusted for age, gender, and comorbidity (OR:1.88, CI:1.36-2.59) and fair accuracy (AUC > 0.60) in predicting ADL difficulty in both men and women in predictive analysis. Muscle strength assessment using a handgrip involves evaluating the static contractions of forearm and hand muscles, which are rarely required for daily activities (Felício *et al.*, 2021). In contrast, the tasks involved in the TUG test require a range of capabilities, including mobility, balance, and cognitive resources,which are also essential for performing daily activities (Herman *et al.*, 2011; Sakthivadivel *et al.*, 2022). This may partially explain the TUG test's greater predictive ability than the HGS. The observed predictive ability of the TUG test holds potential for geriatric functional assessment. Mainly because, unlike HGS, the TUG assessment is simple, quick, requires minimal resources and expertise, and is easy to perform and interpret. However, further studies are needed to confirm the findings.

The results of this study are based on a large number of participants. The findings reinforce that using the HGS and TUG tests can facilitate discrimination between individuals with normal muscle

strength and those with muscle weakness, thereby treating only those who require intervention and reducing public health costs. Additionally, the TUG test's observed predictive ability for ADL difficulty suggests a possible, cost-effective, easy, and quick functional assessment. This is particularly beneficial, considering the population's high demand. However, there were a few limitations. Firstly, a causal relationship could not be established as this was a cross-sectional study. Secondly, the results might not be generalizable to other settings due to the limitations of using data from urban older adults.

Conclusion

This study provided evidence of better HGS and TUG performance among men than among to women, and revealed age-related differences across genders. The findings highlighted the need for population-specific cut-off values for these parameters. The findings revealed that HGS and TUG are associated with ADL in community-dwelling older adults aged ≥60 years. Given that these are modifiable factors, we suggest screening for HGS and TUG abnormalities to identify early functional decline in older adults. Further studies are encouraged to assess the predictive ability and cut-offs of TUG and HGS to identify those at risk of ADL difficulties.

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References

Beauchet, O., Fantino, B., Allali, G., Muir, S. W., Montero-Odasso, M., & Annweiler, C. (2011). Timed up and go test and risk of falls in older adults: A systematic review. *The Journal of Nutrition, Health and Aging*, *15*(10), 933–938. https://doi.org/10.1007/s12603-011-0062-0

Chandhanayingyong, C., Adulkasem, N., Asavamongkolkul, A., Chotiyarnwong, P., Vanitcharoenkul, E., Laohaprasitiporn, P., Soparat, K., & Unnanuntana, A. (2024). Establishing Normative Values for Performance-Based Tests in Older Thai Adults: A Nationwide Cross-Sectional Study. *Archives of Physical*

Medicine and Rehabilitation, *105*(6), 1133–1141. https://doi.org/10.1016/j.apmr.2024.01.023

Chen, L.-K., Woo, J., Assantachai, P., Auyeung, T.-W., Chou, M.-Y., Iijima, K., Jang, H. C., Kang, L., Kim, M., Kim, S., Kojima, T., Kuzuya, M., Lee, J. S. W., Lee, S. Y., Lee, W.-J., Lee, Y., Liang, C.-K., Lim, J.-Y., Lim, W. S., … Arai, H. (2020). Asian Working Group for Sarcopenia: 2019 Consensus Update on Sarcopenia Diagnosis and Treatment. *Journal of the American Medical Directors Association*, *21*(3), 300-307.e2. https://doi.org/10.1016/j.jamda.2019.12.012

Chua, K. Y., Lim, W. S., Lin, X., Yuan, J.-M., & Koh, W.-P. (2020). Handgrip Strength and Timed Up-and-Go (TUG) Test are Predictors of Short-Term Mortality among Elderly in a Population-Based Cohort in Singapore. *The Journal of Nutrition, Health and Aging*, *24*(4), 371–378. https://doi.org/10.1007/s12603-020-1337-0

Delinocente, M. L. B., de Carvalho, D. H. T., Máximo, R. de O., Chagas, M. H. N., Santos, J. L. F., Duarte, Y. A. de O., Steptoe, A., de Oliveira, C., & Alexandre, T. da S. (2021). Accuracy of different handgrip values to identify mobility limitation in older adults. *Archives of Gerontology and Geriatrics*, *94*, 104347. https://doi.org/10.1016/j.archger.2021.104347

Felício, D. C., Elias Filho, J., Queiroz, B. Z. de, Diz, J. B. M., Pereira, D. S., & Pereira, L. S. M. (2021). Knee extension strength and handgrip strength are important predictors of Timed Up and Go test performance among community-dwelling elderly women: A cross-sectional study. *Sao Paulo Medical Journal = Revista Paulista De Medicina*, *139*(1), 77–80. https://doi.org/10.1590/1516-3180.2020.0182.R1.30102020

Ferrucci, L., Cooper, R., Shardell, M., Simonsick, E. M., Schrack, J. A., & Kuh, D. (2016). Age-Related Change in Mobility: Perspectives From Life Course Epidemiology and Geroscience.

The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 71(9), 1184–1194. https://doi.org/10.1093/gerona/glw043

Fried, L. P., Tangen, C. M., Walston, J., Newman, A. B., Hirsch, C., Gottdiener, J., Seeman, T., Tracy, R., Kop, W. J., Burke, G., & McBurnie, M. A. (2001). Frailty in Older Adults: Evidence for a Phenotype. *The Journals of Gerontology: Series A*, 56(3), M146–M157. https://doi.org/10.1093/gerona/56.3.M146

Herman, T., Giladi, N., & Hausdorff, J. M. (2011). Properties of the 'Timed Up and Go' Test: More than Meets the Eye. *Gerontology*, 57(3), 203–210. https://doi.org/10.1159/000314963

Kemala Sari, N., Stepvia, S., Ilyas, M. F., Setiati, S., Harimurti, K., & Fitriana, I. (2025). Handgrip strength as a potential indicator of aging: Insights from its association with aging-related laboratory parameters.*Frontiers in Medicine*, 12. https://doi.org/10.3389/fmed.2025.1491584

Lee, J. E., Chun, H., Kim, Y. S., Jung, H. W., Jang, I. Y., Cha, H. M., Son, K. Y., Cho, B., Kwon, I. S., & Yoon, J. L. (2020). Association between Timed Up and Go Test and Subsequent Functional Dependency. *Journal of Korean Medical Science*, 35(3), e25. https://doi.org/10.3346/jkms.2020.35.e25

Leong, D. P., Teo, K. K., Rangarajan, S., Kutty, V. R., Lanas, F., Hui, C., Quanyong, X., Zhenzhen, Q., Jinhua, T., Noorhassim, I., AlHabib, K. F., Moss, S. J., Rosengren, A., Akalin, A. A., Rahman, O., Chifamba, J., Orlandini, A., Kumar, R., Yeates, K., … Yusuf, S. (2016). Reference ranges of handgrip strength from 125, 462 healthy adults in 21 countries: A prospective urban rural epidemiologic (PURE) study. *Journal of Cachexia, Sarcopenia and Muscle*, *7*(5), 535–546. https://doi.org/10.1002/jcsm.12112

Liwsrisakun, C., Pothirat, C., Chaiwong, W., Techatawepisarn, T., Limsukon, A., Bumroongkit, C., Deesomchok, A.,

Theerakittikul, T., & Tajarernmuang, P. (2020). Diagnostic ability of the Timed Up & Go test for balance impairment prediction in chronic obstructive pulmonary disease. *Journal of Thoracic Disease*, *12*(5), 2406–2414. https://doi.org/10.21037/jtd.2020.03.47

Long, J., Cai, T., Huang, X., Zhou, Y., Kuang, J., & Wu, L. (2020). Reference value for the TUGT in healthy older people: A systematic review and meta-analysis. *Geriatric Nursing*, *41*(3), 325–330. https://doi.org/10.1016/j.gerinurse.2019.11.012

Nagarkar, A., Gadhave, S., & Kulkarni, S. (2014). Development and preliminary validation of a new scale to assess functional ability of older population in India. *Archives of Gerontology and Geriatrics*, *58*(2), 263–268. https://doi.org/10.1016/j.archger.2013.10.002

Rijk, J. M., Roos, P. R., Deckx, L., van den Akker, M., & Buntinx, F. (2016). Prognostic value of handgrip strength in people aged 60 years and older: A systematic review and meta-analysis. *Geriatrics & Gerontology International*, *16*(1), 5–20. https://doi.org/10.1111/ggi.12508

Sakthivadivel, V., Geetha, J., Gaur, A., & Kaliappan, A. (2022). Performance-Oriented Mobility Assessment test and Timed Up and Go test as predictors of falls in the elderly – A cross-sectional study. *Journal of Family Medicine and Primary Care*, *11*(11), 7294. https://doi.org/10.4103/jfmpc.jfmpc_1294_22

Sallinen, J., Stenholm, S., Rantanen, T., Heliövaara, M., Sainio, P., & Koskinen, S. (2010). Hand-grip strength cut points to screen older persons at risk for mobility limitation. *Journal of the American Geriatrics Society*, *58*(9), 1721–1726. https://doi.org/10.1111/j.1532-5415.2010.03035.x

Strandkvist, V., Larsson, A., Pauelsen, M., Nyberg, L., Vikman, I., Lindberg, A., Gustafsson, T., & Röijezon, U. (2021). Hand grip strength is strongly associated with lower limb strength but only weakly with postural control in community-dwelling older adults.

Archives of Gerontology and Geriatrics, *94*, 104345. https://doi.org/10.1016/j.archger.2021.104345

Sundarakumar, J. S., Raviteja, K. V., Muniz-Terrera, G., & Ravindranath, V. (2022). Normative data for three physical frailty parameters in an aging, rural Indian population. *Health Science Reports*, *5*(2), e567. https://doi.org/10.1002/hsr2.567

Szaflik, P., Zadoñ, H., Michnik, R., & Nowakowska-Lipiec, K. (2025). Handgrip Strength as an Indicator of Overall Strength and Functional Performance—Systematic Review. *Applied Sciences*, *15*(4), Article 4. https://doi.org/10.3390/app15041847

Tan, T. C., Guo, Y. Y., Ho, D. J., Sanwari, N. A. B., Quek, P. H., Tan, R. S., Yap, F. S., Yang, M., & Yeung, M. T. (2023). Reference Values, Determinants and Regression Equation for the Timed-Up and Go Test (TUG) in Healthy Asian Population Aged 21 to 85 Years. *International Journal of Environmental Research and Public Health*, *20*(9), Article 9. https://doi.org/10.3390/ijerph20095712

United Nations Population Fund-India. (2023, December 23). *India's ageing population: Why it matters more than ever*. https://india.unfpa.org/en/news/indias-ageing-population-why-it-matters-more-ever#:~:text=While%20India%20has%20the%20highest,staggering%20347%20million%20by%202050.

Vaishya, R., Misra, A., Vaish, A., Ursino, N., & D'Ambrosi, R. (2024). Hand grip strength as a proposed new vital sign of health: A narrative review of evidences. *Journal of Health, Population and Nutrition*, *43*(1), 7. https://doi.org/10.1186/s41043-024-00500-y

Valenzuela, P. L., Maffiuletti, N. A., Saner, H., Schütz, N., Rudin, B., Nef, T., & Urwyler, P. (2020). Isometric Strength Measures are Superior to the Timed Up and Go Test for Fall Prediction in Older Adults: Results from a Prospective Cohort Study. *Clinical Interventions in Aging*, *15*, 2001–2008. https://doi.org/10.2147/CIA.S276828

Vennu, V. (2023). Biological ageing and the risk of decreased handgrip strength among community-dwelling older adult Indians: A cross-sectional study. *BMC Geriatrics*, *23*(1), 782. https://doi.org/10.1186/s12877-023-04498-6

Wang, D. X. M., Yao, J., Zirek, Y., Reijnierse, E. M., & Maier, A. B. (2020). Muscle mass, strength, and physical performance predicting activities of daily living: A meta-analysis. *Journal of Cachexia, Sarcopenia and Muscle*, *11*(1), 3–25. https://doi.org/10.1002/jcsm.12502

Wang, X., Ma, Y., Wang, J., Han, P., Dong, R., Kang, L., Zhang, W., Shen, S., Wang, J., Li, D., Zhou, M., Wang, L., Niu, K., & Guo, Q. (2016). Mobility and Muscle Strength Together are More Strongly Correlated with Falls in Suburb-Dwelling Older Chinese. *Scientific Reports*, *6*(1), 25420. https://doi.org/10.1038/srep25420

Wang, Y., Liu, Y., Hu, J., Guan, H., Wang, Y., Liu, M., He, L., Sun, N., Yang, W., & Ma, Y. (2022). Association of handgrip strength with all-cause mortality: A nationally longitudinal cohort study in China. *Journal of Science and Medicine in Sport*, *25*(11), 878–883. https://doi.org/10.1016/j.jsams.2022.08.005

Wiœniowska-Szurlej, A., Æwirlej-Sozañska, A., Wo³oszyn, N., Sozañski, B., & Wilmowska-Pietruszyñska, A. (2019). Association between Handgrip Strength, Mobility, Leg Strength, Flexibility, and Postural Balance in Older Adults under Long-Term Care Facilities. *BioMed Research International*, *2019*, e1042834. https://doi.org/10.1155/2019/1042834

Zasadzka, E., Trzmiel, T., Kasior, I., & Hojan, K. (2023). Does Hand Grip Strength (HGS) Predict Functional Independence Differently in Patients Post Hip Replacement Due to Osteoarthritis versus Patients Status Post Hip Replacement Due to a Fracture? *Clinical Interventions in Aging*, *18*, 1145–1154. https://doi.org/10.2147/CIA.S415744

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