

Indian Journal of GERONTOLOGY

(a quarterly journal devoted to research on ageing)

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SCOPE OF THE JOURNAL

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A Retrospective Analysis of Surgical Interventions among the Elderly in Assam: Demographic Patterns and Geriatric Health Policy Implications

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ABSTRACT

The objective of this retrospective cross-sectional study was to examine the demographic distribution of major and minor surgical interventions among individuals aged 60 years and above across six districts of Upper Assam. Of these, 546 reported having undergone at least one surgical procedure. Surgeries were classified as major or minor based on standard clinical criteria, such as invasiveness, duration, and complexity, to ensure consistency. Variables included age, gender, type of surgery, and district. Associations were assessed using the Chi-square test. The findings revealed that of the 546 surgical events analysed, 40.66 per cent were major and 59.34 per cent were minor. Age demonstrated the strongest association with type of surgery, with major

procedures increasing through the 60–79-year age group and declining thereafter. District-level variation was also statistically significant, suggesting differences in access or service availability. Gender showed a comparatively weaker, though significant, association. However, no significant association was found between the age groups and the number of major surgical interventions. Based on these findings, it may be concluded that surgical exposure among elderly residents of Upper Assam is substantial and influenced primarily by age and district-level factors. Clarifying the clinical criteria used for classification helps ensure transparency and comparability of the findings for future research and clinical practice.

Keywords : Elderly health, Surgical utilisation, Geriatric care, District variation, Assam

Older adults frequently present with multiple co-existing illnesses, diminished physiological reserve, and altered pharmacodynamics, underscoring their complex health needs that require careful consideration and appreciation from medical professionals and researchers.

Surgical procedures in the elderly are generally classified as major or minor based on the degree of invasiveness, duration, type of anaesthesia, anticipated postoperative care, and expected recovery period. While minor procedures may be considered routine in younger individuals, they can carry increased risk in older adults because of slower recovery and reduced resilience (Story, 2008). Major surgeries, on the other hand, require careful balancing of potential benefit against perioperative risk, especially in patients with multiple co-morbidities.

Review of Literature

A review of the literature on elderly surgical patients in Assam reveals limited regional data, underscoring the need for more

comprehensive studies to better understand local outcomes, methodologies, and research gaps.

Brahma *et al.*, (2016) conducted a prospective hospital-based study involving 390 patients over 1 year, revealing a 3.2-fold increase in risk of emergency surgery and 100 per cent mortality in patients aged ≥ 75 years. These findings underscore the critical need for cautious decision-making and effective resuscitation in emergency cases involving the elderly.

Das *et al.*, (2016) carried out a prospective study in the department of general surgery over 3 years, involving 273 patients with carcinoma. They found varying survival rates for the different types and stages of carcinoma and concluded that chronological age should not form the basis of the treatment of cancer patients.

Vasanth *et al.*, (2018) conducted a cross-sectional descriptive and inferential analysis in the medicine wards of a tertiary care hospital, involving 200 patients over a 2-years period. They observed easy fatigability, along with a host of neurological, endocrine, and cardiorespiratory diseases, in the majority of cases.

All studies on the health aspects of the elderly in Assam were confined to a single hospital-based, tribe-based, or place-based study. The remaining studies on the health of the elderly in Assam have not been included in this review, as they are not solely focused on surgical interventions.

Objectives

Understanding the demographic profile of elderly patients undergoing major and minor surgeries can offer valuable insights into patterns of surgical demand, healthcare access, and resource allocation. Such analysis becomes particularly relevant in geographically and socio-economically diverse regions like Assam, where disparities in health infrastructure may influence surgical utilisation.

Hence, the specific objectives set for this study were:

- i. To analyse age-wise, gender-wise, and district-wise patterns in surgical interventions among the elderly persons across the study area.
- ii. To examine associations between age groups and the frequency of major surgical procedures.
- iii. To offer empirically grounded recommendations for geriatric surgical policy and healthcare planning.

Null Hypotheses

Keeping the objectives in view, the study formulates the following null hypotheses:

- H_{01} : There is no age-wise difference in surgical interventions among the elderly persons across the study area.
- H_{02} : There is no gender-wise difference in surgical interventions among the elderly persons across the study area.
- H_{03} : There is a district-wise difference in surgical interventions among the elderly persons across the study area.
- H_{04} : There is no association between age groups and the frequency of major surgical procedures.

Method

This retrospective cross-sectional study utilised primary data collected during 2016–2017 as part of a broader study of the socio-demographic profile of elderly individuals. The field study was conducted across six districts of Assam: Dibrugarh, Tinsukia, Jorhat, Golaghat, Sivasagar, and North Lakhimpur.

A total of 655 individuals aged ≥ 60 years (361 males, 294 females) with a history of at least one surgical intervention (performed during or prior to 2016) were included. Participants were identified through community-based field visits. Eligibility required age ≥ 60 years at the time of the field study and a verifiable history of surgery.

Surgical procedures were clinically categorised as major if they involved general or regional anaesthesia, substantial tissue handling, and postoperative hospitalisation (e.g., cholecystectomy, hysterectomy, orthopaedic procedures). Procedures performed under local anaesthesia or minimal sedation with limited tissue handling and typically shorter recovery periods (e.g., cataract surgery, excision of small benign lesions) were classified as minor. Newsome *et al.* (2021) showed that this classification lacks universal, standardised definitions. Hence, the classification used for this study was validated through consultation with practising surgeons in the study districts.

Although detailed information on specific surgical procedures was collected, the present analysis focuses on the distribution of major and minor surgeries and their demographic correlates rather than procedure-specific prevalence. A procedure-wise analytical breakdown of individual surgical categories may be undertaken in future studies. Further, as the data pertain to surgical experiences reported up to 2016, the findings may not fully reflect current surgical trends. However, they provide important baseline epidemiological insights into geriatric surgical patterns across districts in Assam, which were lacking in previous studies.

Data had been collected using a structured interview schedule and corroborated with available hospital records wherever possible. The variables recorded included age (in completed years), gender, district of residence, and type of surgery (major/minor).

Verbal informed consent was obtained from all participants prior to data collection, and confidentiality of personal and medical information was strictly maintained.

Data were entered into Microsoft Excel, cleaned, and cross-checked for internal consistency. Descriptive statistics were computed to summarise distributions. Associations between demographic variables and type of surgery were assessed using the Chi-square test of independence, with statistical significance

set at $p < .05$. Statistical analyses were performed in Microsoft Excel and R.

Results

The findings have been analysed using relevant statistical tests, tables, and diagrammatic representations.

Overall Surgical Distribution

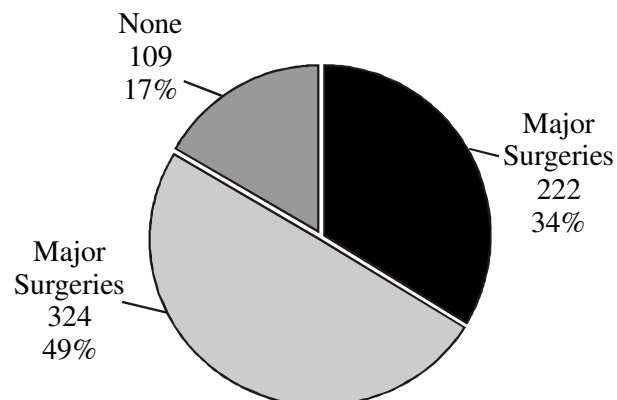
Out of 655 participants, 222 (33.9%) underwent major surgery, 324 (49.5%) underwent minor surgery, and 109 (16.6%) reported no surgery.

Cataract extraction, orthopaedic correction, hernia repair, cholecystectomy, appendectomy, uterine tumour removal, and pacemaker implantation were the most frequent, along with other significant interventions.

Thus, over four-fifths of the respondents had experienced at least one surgery (major or minor), indicating a substantial lifetime surgical footprint.

The minor surgical procedures included ear cleaning, scrotal corrections, tubectomies, and other procedures not classified as major. Figure 1 (Pie Chart) represents data showing lifetime surgical experiences across all elderly respondents, summarising proportions of major, minor, and no surgeries.

Figure 1 : Overall distribution of surgical Status (N=655)



Age-wise, Gender-wise, and District-wise Patterns

The distribution of major, minor, and no surgeries across age, gender and district is shown in Table 1.

Table 1
Surgery Types across Age, Gender and District

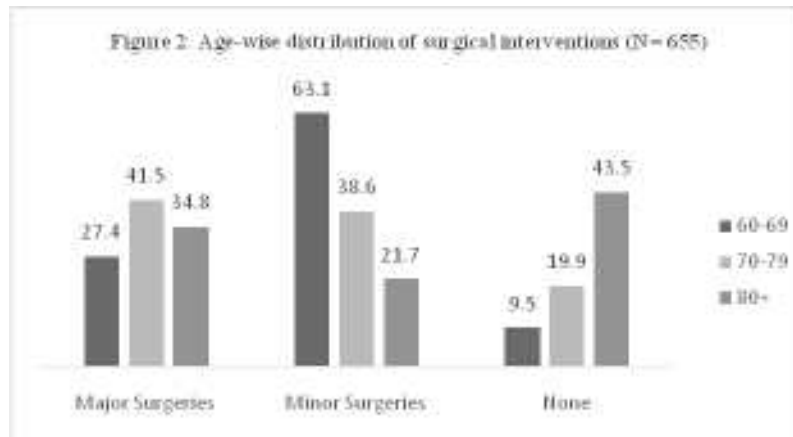
<i>Variables</i>	<i>Groups</i>	<i>Major Surgery (n=222) (33.9%)</i>	<i>Minor Surgery (n=324) (49.5%)</i>	<i>No Surgery (n=109) (16.6%)</i>	<i>Total (N=655) (100.0)</i>	χ^2
Age (years)	60-69	101 (27.4)	233 (63.1)	35 (9.5)	369 (100.0)	81.77 <i>d.f.</i> =4 <i>p</i> <.001
	70-79	71 (41.5)	66 (38.6)	34 (19.9)	171 (100.0)	
	80+	50 (34.8)	25 (21.7)	40 (43.5)	115 (100.0)	
Gender	Male	106 (29.4)	194 (53.7)	61 (16.9)	361 (100.0)	7.87 <i>d.f.</i> =2 <i>p</i> =.019
	Female	116 (39.5)	130 (44.2)	48 (16.3)	294 (100.0)	
District	Dibrugarh	71 (35.5)	99 (49.5)	30 (15.0)	200 (100.0)	20.81 <i>d.f.</i> =10 <i>p</i> <.05
	Golaghat	21 (35.0)	30 (50.0)	9 (15.0)	60 (100.0)	
	Jorhat	36 (32.7)	49 (44.5)	25 (22.7)	110 (100.0)	
	N.Lakhimpur	21 (28.0)	38 (50.7)	16 (21.3)	75 (100.0)	
	Sivasagar	21 (30.0)	33 (47.1)	16 (22.9)	70 (100.0)	
	Tinsukia	52 (37.1)	75 (53.5)	13 (9.3)	140 (100.0)	

These indicate percentages out of row totals.

i. Age-wise Surgical Distribution

Age distribution showed that the 60–69 group (n = 369) had the highest frequency of surgeries, primarily minor (63.1%). In contrast, the 80+ group (n = 115) reported more cases with no surgery (43.5%). The association between age and type of surgery was significant, $\chi^2 (4) = 81.77$, *p* < .001.

Figure 2 (Grouped Column Chart) shows major, minor and no surgeries by age group. The percentages are within group values.

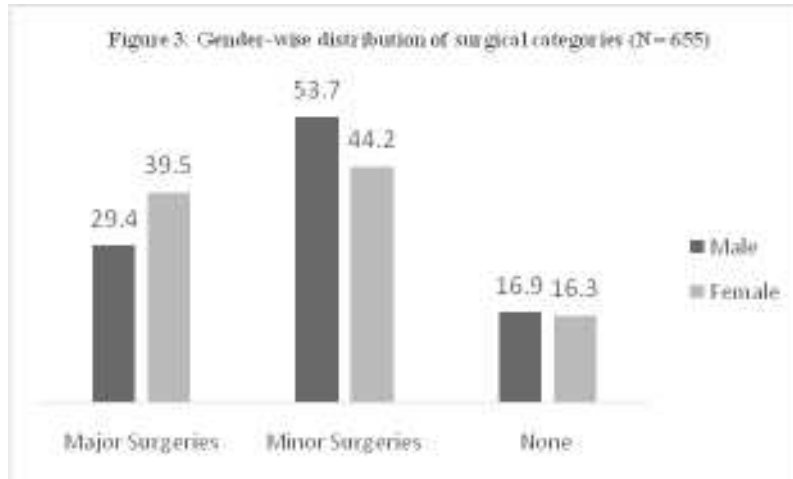


Thus, the first null hypothesis that there is no age-wise difference in surgical interventions among the elderly persons across the study area is rejected.

ii. Gender Wise Patterns

Among 361 males and 294 females, the proportion who had never undergone any surgery was similar across genders — 16.9% in males and 16.3% in females. Major surgeries were more common among females (39.5%) than males (29.4%), while minor surgeries predominated among males (53.7%). This difference was statistically significant, $\chi^2(2) = 7.87$, $p = .019$.

Figure 3 (Grouped Column Chart) shows that females underwent proportionally more major surgeries; males more minor procedures. It should be noted that the data reflect self-reported surgical experiences, substantiated by medical records where available.



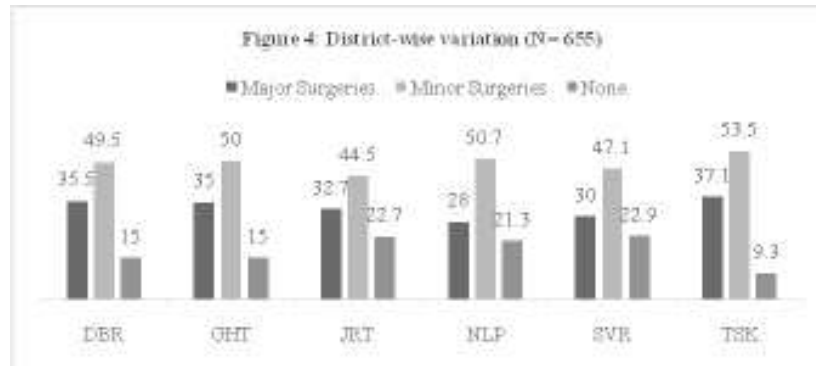
Thus, the second null hypothesis that there is no gender-wise difference in surgical interventions among the elderly persons across the study area is rejected.

iii. District Wise Variation

Spatial disparities were evident. Dibrugarh (35.5%) and Tinsukia (37.1%) recorded the highest rates of major surgery, while Sivasagar (30.0%) and North Lakhimpur (28.0%) recorded lower rates. The relationship between district and surgical category was significant, $\chi^2(10) = 20.81$, $p < .05$.

Minor surgeries were most common in Tinsukia (53.5%) and North Lakhimpur (50.7%), indicating higher levels of surgical service delivery or better health-seeking behaviour in these areas. Interestingly, the proportion of elderly individuals with no history of surgery was highest in Jorhat (22.7%) and Sivasagar (22.9%), suggesting potential barriers to care or regional differences in health behaviour.

Figure 4 (Grouped Column Chart) illustrates variations between the six study districts of Assam: Dibrugarh (DBR), Golaghat (GHT), Jorhat (JRT), North Lakhimpur (NLP), Sivasagar (SVR), and Tinsukia (TSK). A higher concentration of major surgical cases is evident in Tinsukia and Dibrugarh, followed by Golaghat, as shown in the diagram.



Thus, the third null hypothesis that there is no district-wise difference in surgical interventions among the elderly persons across the study area is rejected.

iv. Frequency of Major Surgeries

Among 222 individuals who had major surgery, 80.4% underwent one, 15.2% two, and 4.3% three or more procedures. This is shown in Table 2.

Table 2
Number of Major Surgeries across Age Groups

Age Group (In years)	1 Surgery	2 Surgeries	≥ 3 Surgeries	Total*
60-69	101 (82.8)	17 (13.9)	4 (3.3)	122 (33.1)
70-79	71 (79.8)	13 (14.6)	5 (5.6)	89 (52.0)
80+	50 (76.9)	12 (18.5)	3 (4.6)	65 (56.5)
Total	222 (80.4)	42 (15.2)	12 (4.3)	276

Figures within parentheses indicate percentages out of row totals

* Figures within parentheses in the Total Column show age group percentages.

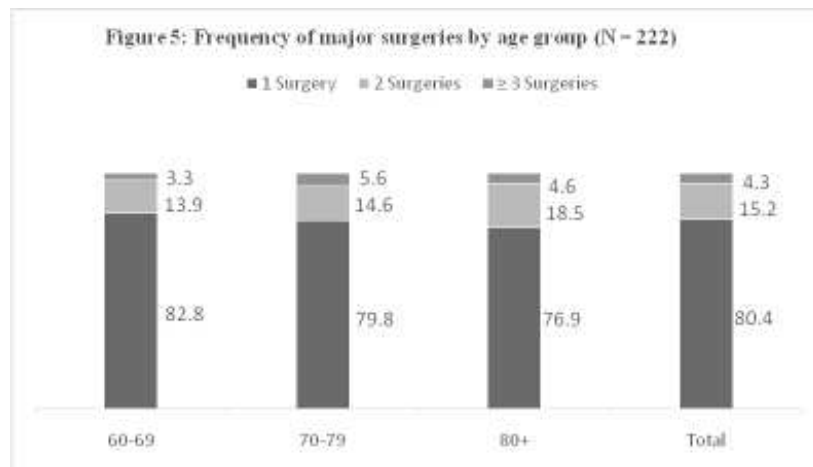
To perform a valid Pearsonian Chi-square test, the 3x3 contingency Table 2, with several low expected frequencies (<5), was collapsed into Table 3 with two categories of surgery frequency: “1 Surgery” and “More than 1 Surgery” (combining 2 and ≥3 Surgeries). Out of the 222 elderly individuals, 54 (24.3%) experienced repeated surgical interventions, underscoring the cumulative burden of chronic or recurring conditions in the elderly. However, age was not

significantly associated with the number of major surgeries ($\chi^2(2) = 0.96$, $p = .618$).

Table 3
Association between Number of Major Surgeries and Age

Age Group (In years)	1 Surgery	> 1 Surgery	Total	χ^2
60-69	101	21	122	0.96
70-79	71	18	89	d.f.= 2
80+	50	15	65	$p = .618$
Total	222	54	276	

Figure 5 (Stacked Column Chart) shows that while most had only one surgery, the share of multiple procedures slightly increased in the/ 70-79 years/ age group, followed by the 80+ group.



Thus, no significant association was found between age groups and the frequency of major surgical procedures. As such, the fourth null hypothesis could not be rejected.

Discussion

The present study demonstrates that a substantial proportion of elderly individuals in Assam have undergone surgical intervention. Of the 546 surgical events analysed, 40.66% were major, and 59.34% were minor procedures. This reflects the broader demographic

transition underway in India, where increasing longevity has expanded the number of older adults living with chronic and surgically manageable conditions (MoSPI, 2021). Surgical care in later life is therefore becoming a consistent component of healthcare delivery rather than an exception.

Among the variables examined, age showed the strongest association with the type of surgery. Major surgical exposure increased with advancing age up to 79 years, then declined among those aged 80 years and above. Clinically, this pattern is plausible. Progressive frailty, reduced physiological reserve, and higher perioperative risk often influence decision-making in very elderly patients, leading to more cautious selection for major procedures (Story, 2008). The findings reinforce the central role of biological ageing in shaping surgical patterns.

District-level variation also demonstrated a meaningful association with surgical type, though less pronounced than age. Differences across districts likely reflect disparities in institutional capacity, specialist availability, referral systems, and overall healthcare infrastructure. Regional development assessments have similarly noted the uneven distribution of health services within Northeast India (NITI Aayog, 2019). These findings suggest that geographic location remains an important structural determinant of surgical exposure.

Gender showed the weakest association—though still statistically significant—with the type of surgery. The relatively modest variation may indicate that, in this regional context, surgical access among elderly males and females is not as sharply differentiated as age or geography. Nevertheless, biological factors, differential longevity, and sex-specific procedures may still contribute to observed patterns.

The continued presence of surgical exposure across older age groups also reflects the cumulative burden of chronic disease in ageing populations. As life expectancy increases, operative management of degenerative and metabolic conditions becomes more common.

Global surgery estimates have highlighted this rising demand for surgical services in ageing societies (Meara *et al.*, 2015).

Overall, the findings suggest that while surgical care among the elderly in Assam is clinically substantial, its distribution is shaped primarily by age, followed by geographic context and, to a lesser extent, by gender. Incorporating structured geriatric assessment into routine surgical evaluation and strengthening district-level capacity may help ensure more equitable and age-sensitive surgical care (Partridge, *et al.*, 2012).

Policy Implications

The findings of this study show that surgical planning for elderly patients in Assam should focus primarily on two factors: age and district-level access to services. Since age showed the strongest association with the type of surgery, routine preoperative assessment of functional status and frailty—especially in patients above 80 years—may help doctors make more appropriate surgical decisions and plan recovery more carefully. The lower rate of major surgeries in the oldest age group suggests that treatment decisions should be based on overall health condition rather than age alone.

Differences across districts, which showed the next strongest association, indicate that access to surgical care is not uniform across the region. Improving surgical facilities, anaesthesia support, and referral systems in relatively underserved districts could help reduce this imbalance. Although gender differences were statistically significant, their influence was comparatively smaller, suggesting that policy attention may be better directed toward age-sensitive care and strengthening district-level services. The continued occurrence of surgeries across older age groups also highlights the need for better postoperative follow-up and rehabilitation support for elderly patients. Overall, the findings suggest that integrating geriatric considerations into routine surgical planning at the district level would help improve care for the ageing population in Assam.

Conclusion

This study provides district-level evidence on surgical exposure among elderly residents in Assam, an area where such data are rarely documented. The findings show that surgical care is not incidental in later life but forms a recurring part of health experience for many older adults. As global estimates indicate a rising demand for surgical services alongside population ageing (Meara et al., 2015), regional data such as these become important for realistic planning.

Rather than viewing surgery in old age as exceptional, the results suggest it should be approached as a predictable component of geriatric care—one that requires thoughtful assessment, continuity of follow-up, and locally responsive service delivery. Further research that tracks outcomes over time would help deepen understanding of how surgical care can be better aligned with the needs of ageing populations in Assam.

Acknowledgement

This paper was written during the first author's winter vacation, as part of her early exposure to research in geriatric health. She gratefully acknowledges her respected teachers at ZMC&H, Falkawn, Aizawl District, Mizoram. The authors further acknowledge the practising surgeons in the study districts who were consulted to classify the types of surgery, and the elderly respondents who participated in the original field study, whose responses formed the basis of the present analysis. No external funding was received for this study.

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Relationship between Social Media and Loneliness Among Senior Citizens during COVID-19: A Scopus and Web of Science Publication Analysis

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ABSTRACT

This study examines published literature, using both qualitative and quantitative methods, to understand the impact of the Internet, particularly social media, on the experience of loneliness among senior citizens during the COVID-19 pandemic. The study conducts a thematic analysis supported by a conceptual framework derived from the selected literature to provide a clearer understanding of the situation. Data were extracted from the Scopus and WoS databases and sorted using Zotero. The identification, screening, and inclusion process followed the 2020 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. After screening for eligibility, 49 documents were analysed on bibliographic and qualitative grounds

using Bibliomagika, MS Excel, and VOSviewer software to obtain valuable insights. The quantitative analysis revealed a high degree of collaboration (0.96) among authors. The analysis showed mixed results regarding the use of social media to reduce feelings of social isolation among older adults. Most studies found positive effects, but some reported that using social media more could lead to increased social isolation and symptoms like depression, distress, and anxiety. The conceptual framework visualises the crux of the publications by highlighting the central problem, contextual antecedent, proposed solutions, and expected results, along with moderating factors such as ICT access, the digital divide, and internet usage patterns that might affect the whole scenario.

Keywords : COVID-19, Depression, Elderly care, Internet use, Loneliness, Older adults, Pandemic, Senior citizens, Social isolation, Social media

Since earlier times, the concept of social support has been recognised as a prominent factor that serves as a buffer between stress and mental health (Geirdal *et al.*, 2021). Prior to the adoption of advanced digital technologies, social connections were maintained through in-person interactions, phone calls, or other forms of traditional correspondence. However, with the emergence of advanced technologies, communication has undergone a transformative shift.

The global demographic shift in terms of an increase in older populations, over 1.6 billion people, by 2050, brings significant health concerns (McKniff *et al.*, 2023). Several studies have shown that, with age, an individual's social network size tends to decrease, and self-perceived loneliness may lead to various adverse health outcomes (Wrzus *et al.*, 2013; Taylor *et al.*, 2021).

The onset of the COVID-19 pandemic has accelerated the use of the Internet and social media technologies to maintain social connections and carry out routine activities. The implementation of lockdown and physical distancing measures made digital technologies

the only means of maintaining social connections, which in turn led to increased interest in technology use among the older population (Cipolletta, 2021; Kung & Steptoe, 2023; Sunwoo, 2024).

The research in this domain has increased significantly during the pandemic. Several studies ranging from cross-sectional approaches to more complex analyses using diverse methodologies, including questionnaires, interviews, focus groups and several other methods, were conducted to delve into the interrelationship between technology use, social well-being and loneliness among older adults (Chidiac *et al.*, 2022; Savage *et al.*, 2022; McKniff *et al.*, 2023).

Building upon this growing body of research, the present study utilised bibliometric mapping techniques to describe publication and citation patterns in the literature, with a focus on social media influence and loneliness among older adults. A thematic analysis was also conducted based on keyword co-occurrence to delineate the major themes and research trends in this domain.

Objectives of the Study

The present study aims to explore how social media influences loneliness among senior citizens during the COVID-19 pandemic, combining bibliometric and thematic analyses to provide comprehensive insights.

- To conduct a bibliometric analysis of research output related to social media use and loneliness in older adults during COVID-19.
- To identify the major thematic areas of the domain based on keyword co-occurrence.
- To develop a conceptual framework for visualising the relationship between social media use, loneliness, and related factors for senior citizens in the context of COVID-19.

Method

To fulfil the objectives, data were retrieved from the Scopus and Web of Science databases on April 6, 2025. Specific inclusion criteria were established to ensure the relevance and quality of the data collected.

Inclusion Criteria

- Literature justifies its relevance to the defined area for research.
- The type of document is an article
- English literature
- Document is available in full text (Open Access)

Exclusion Criteria

- Not relevant to the defined area of the research.
- Any other type of documents like reports, notes, editorials, commentary, etc.
- Not available in Open Access
- Originally published in any language other than English

To get the relevant recalls from both the databases at the initial level, a comprehensive search strategy was created that consisted of four major terms, namely social media, loneliness, senior citizens, and COVID-19, whose synonymous terms were utilised for the formulation of the search string using suitable Boolean operators, as shown in Table 1. Title, abstract, and keyword searching were used for both databases.

Table 1
Search terms used

Social media	AND	Loneliness	AND	Senior Citizens	AND	COVID 19
Social media OR online platform OR Facebook OR WhatsApp OR Internet use	AND	loneliness OR social isolation	AND	elderly OR older adults OR senior citizens OR aging population OR aged people	AND	COVID OR Coronavirus OR 2019-nCoV OR SARS-CoV-2 OR nCoV-2019 OR corona virus

A total of 220 documents (140 from Scopus and 80 from WoS)

were retrieved. These results were then refined by excluding publications from 2025 (as more results are yet to be published this year) and including only open-access documents. Only open-access documents were selected for the study to eliminate barriers that might affect the thematic analysis due to full-text unavailability. Results of this refinement were then exported in RIS format, imported into Zotero to remove duplicates (24), and 100 results were selected. Full search strings are available with the authors and can be provided on demand.

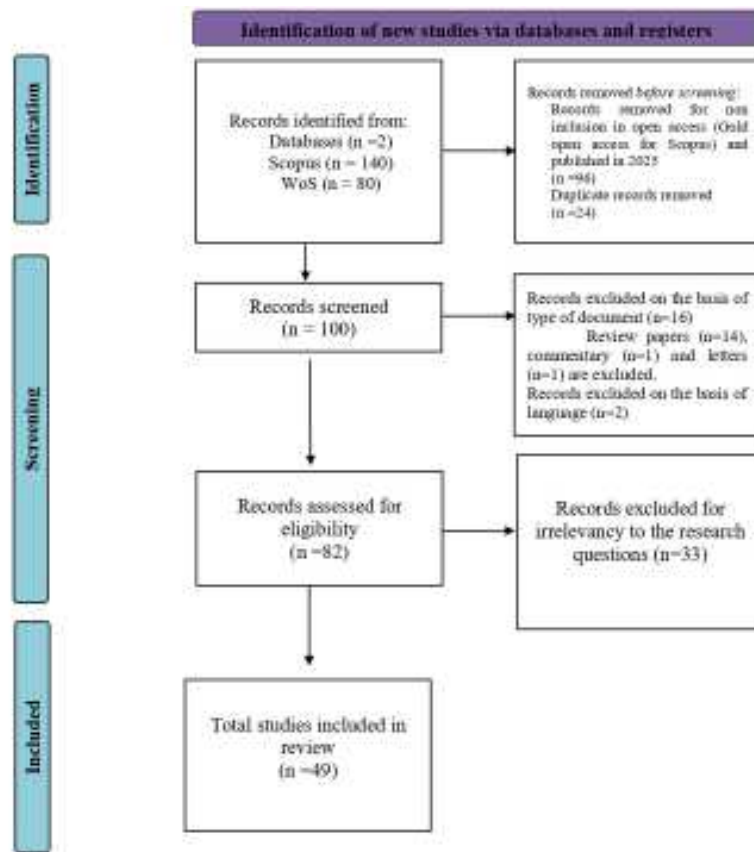


Figure 1 : Step-by-step process of selection of the references

Figure 1 illustrates the process followed by the authors. After removing duplicates, the authors manually screened 100 documents using the inclusion and exclusion criteria. Before the full text was retrieved, initial screening was done using the bibliographic information available in the databases. All authors performed the full-text screening independently. It is advisable to involve at least two reviewers to double-check the results for the best conduct of the study (Santos *et al.*, 2024). Hence, the multiple authorship of this paper is also justified. Discrepancies were resolved through consensus meetings.

After screening the results against the inclusion criteria, 49 relevant publications were selected for further study.

The data from the 49 studies were then analysed in two phases, the first being a descriptive analysis, in which bibliographic data were analysed and presented using MS Excel, biblio Magika (Ahmi, 2024), and VOSviewer (Van Eck & Waltman, 2009). The subsequent part of the analysis classifies the selected literature by theme, followed by the development of a conceptual framework.

Results

Descriptive Analysis

Summary

Table 2 summarises the 49 publications selected for the analysis, of which 46 are cited publications attaining a total citation count of 899. The analysis highlights that the publications under consideration span 5 years, starting in 2020. A total of 238 authors made their contributions to these publications and received 3.78 citations per author.

Table 2
Brief Summary

Start Year	2020
End Year	2024
Total Publications	49
Number of Contributing Authors	238

Number of Cited Papers	46
Total Citations	899
Citation per Paper	18.35
Citation per Cited Paper	19.54
Citation per Author	3.78

Annual research output and citation analysis

Figure 2 visualises the year-wise publication trend alongside citations. The publication rate has been steady. Over the years, the number of citations has gradually declined, peaking in 2021 (just after the pandemic). The same pattern is also justified by the h-index values, which were 10 in 2021 and 2022, then declined to 7 in 2023 and 3 in 2024.

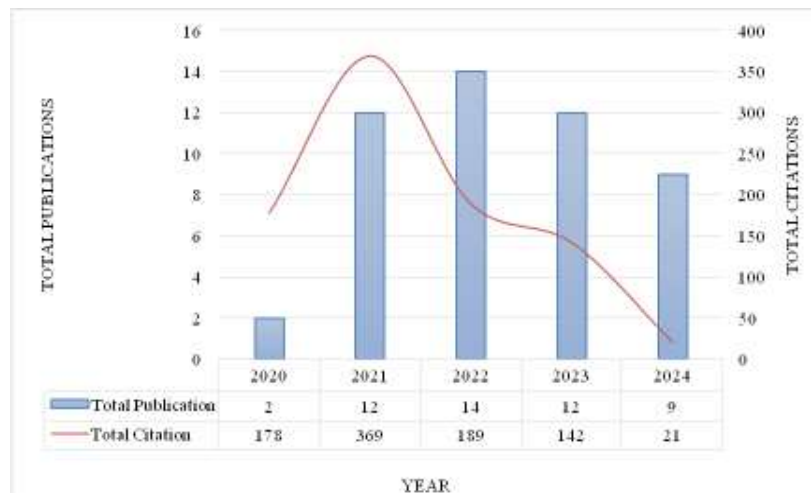


Figure 2: Annual research output and citation trend

Authorship pattern

Figure 3 shows the authorship pattern for the 49 publications published over the years. It is noted that only two publications, one in 2020 and one in 2024, were published in single authorship, while the other 47 publications were published in multiple authorship, highlighting multiple authorship as a preferred authorship pattern for the research done in the area. The value of the degree of

collaboration (0.96) calculated using the Subramanyam formula (Subramanyam, 1983) also justifies the same statement. It is also noted during the analysis that dual authorship has the highest frequency, with 10 instances, followed by publications with six authors (9 instances) and triple authorship (8 instances). Four publications have ten or more contributing authors, and two have twelve, the highest among all.

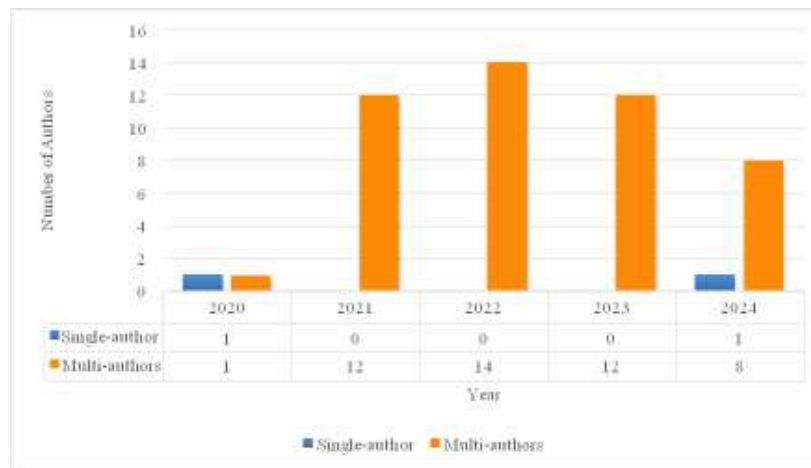


Figure 3: Authorship pattern

Top contributing sources

Table 3 presents the most significant sources contributing substantially to the field. Sources with at least two papers were included in the list, accounting for nine of the twenty sources. The highest number of publications (9) appeared in the “International Journal of Environmental Research and Public Health” (MDPI), followed by “Journals of Gerontology - Series B Psychological Sciences and Social Sciences” with 3 papers. The “*International Journal of Environmental Research and Public Health*” tops in every criterion that is tabulated in Table 3, i.e., the number of contributing authors (38), the number of cited publications (9), citations grabbed (195), h index (7), g index (9) and m index (1.4). “*Social Media and Society*,” published by Sage Publishing Ltd., had the second-highest number of citations (105).

Table 3
Most prolific sources

Source Title	TP	NCA	NCP	TC	C/P	C/CP	h	g	m
International Journal of Environmental Research and Public Health	9	38	9	195	21.7	21.7	7	9	1.4
Journals of Gerontology-Series B Psychological Sciences and Social Sciences	3	13	2	16	5.33	8	2	3	0.67
Frontiers in Public Health	3	15	3	44	14.7	14.7	3	3	0.75
Journal of Medical Internet Research	3	15	3	93	31	31	3	3	0.6
Social Media and Society	2	9	2	105	52.5	52.5	2	2	0.33
JMIR Aging	2	14	2	15	7.5	7.5	2	2	0.5
Healthcare (Switzerland)	2	4	2	90	45	45	2	2	0.4
Innovation in Ageing	2	8	2	8	4	4	2	2	0.67
PLoS ONE	2	12	2	67	33.5	33.5	2	2	0.4

Note: TP=total number of publications; NCA=number of contributing authors; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; g=g-index; m=m-index.

Thematic Analysis using Keyword Co-occurrence

Figure 3 visualises the keyword co-occurrence between the author and the indexed keywords for the 49 selected studies. The studies had a total of 159 keywords, of which 31 met the minimum co-occurrence threshold of 2. Five clusters of these keywords were formed, with their major thematic areas and interpretations presented in Table 4.

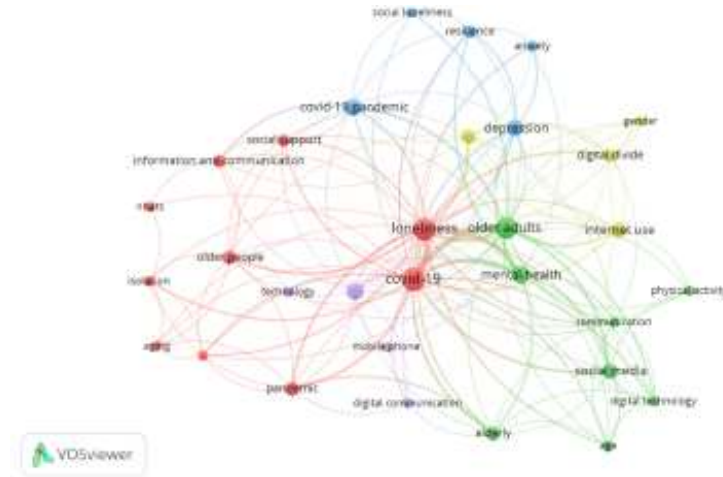


Figure 3 : Visualisation of clusters formed using keyword co-occurrence

Cluster analysis is as follows:

Cluster 1 (Studies related to technology and ageing during COVID-19)

Cluster 1, comprising 10 keywords arranged in decreasing order of average citations, includes studies that discuss senior citizens' engagement with digital technologies to alleviate social isolation and related symptoms. The main purpose of the observed usage is to enhance social connection and connection to social support systems curated for them.

Cluster 2 (Studies related to digital communication and well-being)

The second cluster relates digital communication to the overall well-being of elderly people, examining how social media and other digital platforms have helped them connect, particularly within health-focused groups.

Cluster 3 (Studies related to mental health and emotional resilience)

The third cluster, with 5 keywords, particularly focuses on the psychological challenges faced during the pandemic, such as social

loneliness, distress, anxiety, and other related problems. The cluster also focuses on studies that propose potential solutions to the problems and the resulting factors, such as resilience, that might have emerged in response to them.

Cluster 4 (Studies related to the digital divide and social disparities)

Cluster 4 investigates and presents a different perspective on the same domain. The studies here examine structural inequalities in digital access (the digital divide), as well as the influence of demographic factors (gender only) and socioeconomic status on internet usage and information access.

Cluster 5 (Studies related to technology use and social disconnection)

The top four clusters discussed the positive influence of social media use in curbing feelings of social isolation. However, cluster five has some studies that present an opposite scenario, where the studies investigate the negative effect of reliance on social media and related technologies to connect to the outer world, as there might be some fake or misleading information that may trend over these platforms, which in turn may be a contributing factor for the increasing social isolation and distress, particularly in older adults.

These five clusters, with their respective thematic areas, capture the overall insights from the selected 49 papers.

Table 4
Clustering and thematic areas based on keyword co-occurrence

Cluster #	Cluster Size (Nodes)	Keywords with average citations	Theme	Interpretation
1	10	ageing (50), pandemic (31), covid-19 (19.35), loneliness (15), isolation (14.5), information and communication	Technology and Ageing During COVID-19	Highlights how older populations engaged with digital technologies during the pandemic to mitigate isolation, enhance social

		technologies (14.3333), social support (13), nhats (12.5), older people (11.5), social technology (11)		connectivity, and strengthen support systems.
2	8	communication (34.5), elderly (31.5), social media (21), mental health (18.2222), older adults (16.6875), digital technology (9.5), age (8), physical activity (5.5)	Digital Communication and Well-being	Explores how communication tools and digital platforms support mental health and social participation among elderly individuals, particularly in health-focused contexts.
3	5	COVID-19 pandemic (11.2857), social loneliness (11), resilience (10.3333), depression (10.1667), anxiety (7.5)	Mental Health and Emotional Resilience	Centres on the psychological challenges faced during the pandemic and the coping mechanisms, such as resilience, that emerged in response to social loneliness and distress.
4	4	digital divide (28.3333), coronavirus (25.5), gender (14), internet use (13.8)	Digital Inequity and Social Disparities	Examines structural inequalities in digital access, with emphasis on how gender and socioeconomic status influenced internet usage and information access during COVID-19.
5	4	digital communication (37), technology (29), social isolation (24), mobile phone (13)	Technology Use and Social Disconnection	Investigates how reliance on digital communication tools, such as mobile phones paradoxically relates to experiences of social isolation and disconnection.

Conceptual Framework

A conceptual framework adds depth to the thematic insights of the publications and helps readers better understand the publications and their core concepts through visual or theoretical representations (Guba & Lincoln, 1994; Jabareen, 2009). The conceptual framework for the 49 selected studies is visualised in Figure 5.



Figure 5 : Conceptual Framework

The visualisation shows that these studies were selected for focusing on loneliness and social isolation as the central problem, with senior citizens as the target population. The pandemic (COVID-19) is selected as the contextual antecedent to study the effect of the key mediating mechanism, i.e., the use of social media as a solution to the central problem during the COVID-19 pandemic. Reduced social isolation, loneliness, and related factors are chosen as the desired outcomes, or dependent variables. However, some studies also reported findings at odds with the desired outcomes. The framework also enlists the factors that have moderated the process. Key factors include the digital divide, internet usage, usage patterns, resilience, and access to ICT infrastructure.

Conclusion and recommendations for further research

This study provides valuable insights into the complex relationship between social media use and loneliness among senior citizens during the COVID-19 pandemic. The bibliometric study analysed 49 documents, selected using inclusion and exclusion criteria, to gain insights into their bibliometric and thematic patterns. The findings revealed a surge in research on this topic

following the onset of the pandemic, with a high degree of collaboration among authors. A total of 49 publications were published over 5 years (2020-2024), highlighting an increase in publications in 2021 and 2022, i.e., the period just after the COVID pandemic, followed by a gradual decrease in research output in this domain. A high degree of collaboration (0.96) indicates that multiple authorship is the most preferred authorship pattern among these publications. “International Journal of Environmental Research and Public Health” was the prominent source in this domain, having the highest number of citations, a higher h-index, and the highest number of contributing authors that any journal has observed in the given research area.

The qualitative analysis found that older adults use social media for various purposes, including direct communication and interaction with family and friends via chat applications, as well as maintaining relationships. They also used social media for intergenerational communication, sharing their lives and opinions with others, and accessing social support. Some studies also found social media to be a leisure activity.

The studies were divided into five major clusters based on keyword co-occurrence, and the first four clusters discussed social media, the elderly population, and their relationship, which helps alleviate symptoms of social isolation and identify factors that hinder this positive relationship. However, the fifth cluster has the studies that state the complete opposite to the above theories and mention the role of social media as a tool whose high usage may in turn increase social isolation, which is supported by the facts like complete dependency on unregulated information sources that might misguide and create the feeling of discomfort and loneliness among the population especially the older adults that might not be so much acquainted with the social media usage.

The conceptual framework also presents a similar picture by visualising the various parts of the study, such as the setup, the central problem, the mediating mechanism, and the possible outcomes. The framework also highlights moderating factors, such as unequal ICT access, which leads to the digital divide, and varied internet usage patterns.

The studies found that social media played a mixed role in reducing loneliness among senior citizens, as its effectiveness depends on factors such as digital literacy, access to technology, and the quality of online interactions. Some studies also found an association between higher social media usage and greater odds of reporting more frequent loneliness during the pandemic.

The studies found many limitations when we talk about social media as a mode to cope with loneliness, especially for older adults, and based on these, the authors recommend that researchers, as well as policymakers, should focus on making these technologies accessible for older adults by providing tailored interventions to help them become familiar with the technology. The researchers suggest achieving this by incorporating it into elderly care planning and providing adequate training in collaboration with support centres dedicated to elderly care.

Appendix

Table A1

Comprehensive list of 49 Documents included in the study

Sr. No.	Author and Title	Year
1	Hosea, A., <i>et al.</i> "Context Matters: Internet Usage and Loneliness Among Middle-Aged and Older Adults During the COVID-19 Pandemic"	2024
2	Komatsu, T., <i>et al.</i> "How did the COVID-19 pandemic affect the older adults' needs for robot technologies in Japan? Comparison of participatory design workshops during versus after the COVID-19 pandemic"	2024

- 3 | Lee, J., *et al.* "Impact of a peer-support programme to improve loneliness and social isolation due to COVID-19: Does adding a secure, user-friendly video-conference solution work better than telephone support alone? Protocol for a three-arm randomised clinical trial" 2024
- 4 | Lee, S. "Internet Use and Well-Being of Older Adults Before and During the COVID-19 Pandemic: Findings from European Social Survey" 2024
- 5 | Ozdemir, P., *et al.* "Social loneliness and perceived stress among middle-aged and older adults during the COVID-19 pandemic" 2024
- 6 | Ragnhildslokken, H., *et al.* "Social Media Use and Associations with Psychological Distress Among Older Adults During the COVID-19 Pandemic" 2024
- 7 | Sen, K., *et al.* "Examining the Effect of Contactless Inter-generational Befriending Intervention on Social Isolation Among Older Adults and Students' Attitude Toward Companionship: Content Analysis" 2024
- 8 | Sutherland, J., *et al.* "Evaluation of an online arts-based platform to support the health and well-being of older adults during the COVID-19 pandemic: A cross-sectional survey" 2024
- 9 | Czaja, S., *et al.* "The Benefits of Technology for Engaging Aging Adults: Findings From the PRISM 2.0 Trial" 2024
- 10 | Balki, E., *et al.* "Use and Acceptance of Digital Communication Technology by Older Adults for Social Connectedness During the COVID-19 Pandemic: Mixed Methods Study" 2023
- 11 | Dhakal, U., *et al.* "Better Together: Social Contact and Loneliness Among US Older Adults During COVID-19" 2023
- 12 | Guner, T., *et al.* "The Effect of Loneliness on Death Anxiety in the Elderly During the COVID-19 Pandemic" 2023
- 13 | Holwerda, T., *et al.* "The impact of COVID-19 related adversity on the course of mental health during the pandemic and the role of protective factors: A longitudinal study among older adults in The Netherlands" 2023
- 14 | Kung, C., & Steptoe, A. "Changes in Internet use patterns among older adults in England from before to after the outbreak of the COVID-19 pandemic" 2023

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| 15 | Kung, C., & Steptoe, A. "Internet use and psychological wellbeing among older adults in England: A difference-in-differences analysis over the COVID-19 pandemic" | 2023 |
| 16 | Ling, K. <i>et al.</i> "If you were not connected to the Internet, you were not alive": Experience of using social technology during COVID-19 in adults 50+" | 2023 |
| 17 | Mckniff, M., <i>et al.</i> "Age, Loneliness, and Social Media Use in Adults during COVID-19: A Latent Profile Analysis" | 2023 |
| 18 | Ng, S., <i>et al.</i> "Age-friendliness of city, loneliness and depression moderated by internet use during the COVID-19 pandemic" | 2023 |
| 19 | Wang, Y., <i>et al.</i> "Factors influencing loneliness among older people using home care services during the COVID-19 pandemic" | 2023 |
| 20 | Xu, Y., & Zhou, D. "Feeling Lonely, Engaging Online During the Outbreak of COVID-19: A Longitudinal Study of Chinese Older Adults" | 2023 |
| 21 | Zhang, A. <i>et al.</i> "Can Digital Communication Protect Against Depression for Older Adults With Hearing and Vision Impairment During COVID-19?" | 2023 |
| 22 | Ankuda, C., <i>et al.</i> "The Experience of Homebound Older Adults During the COVID-19 Pandemic" | 2022 |
| 23 | Castillo, J., <i>et al.</i> "Living alone and using social media technologies: The experience of Filipino older adults during the COVID-19 pandemic" | 2022 |
| 24 | Hajek, A., & Konig, H. "Frequency of contact with friends and relatives via internet and psychosocial factors in middle-aged and older adults during the COVID-19 pandemic. Findings from the German Ageing Survey" | 2022 |
| 25 | Li, Y., <i>et al.</i> "Social Isolation, Cognitive Function, and Depression Among Chinese Older Adults: Examining Internet Use as a Predictor and a Moderator" | 2022 |
| 26 | Nguyen, T. <i>et al.</i> "Has Smartphone Use Influenced Loneliness during the COVID-19 Pandemic in Japan?" | 2022 |
| 27 | Sasaki, S., <i>et al.</i> "Internet use and physical activity of older adults during the COVID-19 pandemic: A cross-sectional study in a northern Japanese city." | 2022 |

- 28 Savage, R. D., *et al.* "The Factors Associated With Nonuse of Social Media or Video Communications to Connect With Friends and Family During the COVID-19 Pandemic in Older Adults: Web-Based Survey Study" 2022
- 29 Scarfe, B. *et al.* "Maintaining social and emotional wellbeing among older adults during periods of increased social isolation: Lessons from the COVID-19 pandemic" 2022
- 30 Silberzan, L., *et al.* "Social Isolation Among Older Adults in the Time of COVID-19: A Gender Perspective" 2022
- 31 Su, C., *et al.* "The Psychological Well-Being of Older Chinese Immigrants in Canada amidst COVID-19: The Role of Loneliness, Social Support, and Acculturation" 2022
- 32 Wallinheimo, A., & Evans, S. "Patterns of Internet Use, and Associations with Loneliness, amongst Middle-Aged and Older Adults during the COVID-19 Pandemic" 2022
- 33 Wang, J., *et al.* "Healthcare utilisation, physical activity and mental health during COVID-19 lockdown: An interrupted time-series analysis of older adults in England" 2022
- 34 Yang, C., *et al.* "Mobile Application Use and Loneliness among Older Adults in the Digital Age: Insights from a Survey in Hong Kong during the COVID-19 Pandemic" 2022
- 35 Chidiac, M., *et al.* "Age and Gender Perspectives on Social Media and Technology Practices during the COVID-19 Pandemic" 2022
- 36 Casanova, G., *et al.* "New Older Users' Attitudes Toward Social Networking Sites and Loneliness: The Case of the Oldest-Old Residents in a Small Italian City" 2021
- 37 Cipolletta, S., & Gris, F. "Older people's lived perspectives of social isolation during the first wave of the covid-19 pandemic in Italy" 2021
- 38 Hwang, J., *et al.* "Effects of Web-Based Social Connectedness on Older Adults' Depressive Symptoms: A Two-Wave Cross-Lagged Panel Study" 2021
- 39 Llorente-Barroso, *et al.* "The enabling role of ICT to mitigate the negative effects of emotional and social loneliness of the elderly during COVID-19 pandemic" 2021

40	McCabe, L., <i>et al.</i> "Using technology the right way to support social connectedness for older people in the era of covid-19"	2021
41	Pauly, C., <i>et al.</i> "The Moderating Role of Resilience in the Personality-Mental Health Relationship During the COVID-19 Pandemic"	2021
42	Teresa, M. T., <i>et al.</i> "Thriving during COVID-19: Predictors of psychological well-being and ways of coping"	2021
43	Wallinheimo, A., & Evans, S. "More Frequent Internet Use during the COVID-19 Pandemic Associates with Enhanced Quality of Life and Lower Depression Scores in Middle-Aged and Older Adults"	2021
44	Wetzel, B., <i>et al.</i> "How Come You Don't Call Me?" Smartphone Communication App Usage as an Indicator of Loneliness and Social Well-Being across the Adult Lifespan during the COVID-19 Pandemic"	2021
45	Zureigat, A., & Fattah, O. A. "Effect of the Leisure Activities on the Level of Psychological stress among the elderly during the Coronavirus Outbreak"	2021
46	Cosco, T. D., <i>et al.</i> "Covid-19, social isolation, and mental health among older adults: a digital catch-22"	2021
47	Taylor, A., <i>et al.</i> "Impact of COVID-19 lockdown on psychosocial factors, health, and lifestyle in Scottish octogenarians: The Lothian Birth Cohort 1936 study"	2021
48	Emerson, K. G. "Coping with being cooped up: Social distancing during COVID-19 among 60+ in the United States"	2020
49	Moore, R., & Hancock, J. "Older Adults, Social Technologies, and the Coronavirus Pandemic: Challenges, Strengths, and Strategies for Support"	2020

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Locus of Control, Psychopathology, Psychological Capital and Coping Among Older People in Retirement Homes and Regular Homes

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ABSTRACT

The present cross-sectional study aimed to identify the impact of depression, anxiety, stress, locus of control, ways of coping, and psychological capital among the 25 elderly people living in retirement homes at Shree Ambica Niketan Trust Vrudhashram, Surat and 25 in regular homes. All 50 participants were administered Rotter's Internal-External Locus of Control Scale, the Adult Hope Scale, the General Self-Efficacy Scale, the Resilience Scale, the Life Orientation Test—Revised, the Shortened Ways of Coping Scale, and the Depression, Anxiety, and Stress Scale-21. The findings revealed that elderly people living at home showed a higher internal locus of control than those living in a retirement home. People living in regular homes used more practical thinking than those living in retirement homes, which may contribute to their higher internal locus of control and better coping strategies. Based on the present

findings, it was observed that there is a deficit in coping strategies among the elderly staying in retirement homes, and they feel they have less control over their lives. This result indicates that an effective intervention strategy is needed to enhance problem-coping skills among those living in regular homes, as improving these skills may help bridge the gap in coping strategies observed among the elderly in retirement homes.

Keywords : Self-efficacy, Locus of control, Retirement home, Depression, Anxiety, Resilience.

During old age, an individual goes through a lot of losses of various kinds—the death of a loved one, separation, ill health, threatened body integrity, reduced cerebral and physiological reserve, environmental deprivation due to retirement, and financially reduced circumstances. It is noted that there is a difference in the living environment in terms of family interaction, freedom, and social and financial support of people living in retirement homes and those staying at regular homes, which can significantly impact their overall well-being and quality of life. Earlier research suggests a shift in elderly care. In a 1984 survey on the living arrangements of the elderly, 91% of children said it was their duty to care for their elderly parents, whereas in 1994, the percentage of children holding this view dropped to 77% (Jamuna, 1997). The literature has shown people living in old age homes experiencing lower resilience, higher depression, and death anxiety (Azeem & Naz, 2015). Elderly people living in regular community housing, low-cost community housing, and high self-determination nursing homes reported similar levels of life satisfaction and higher levels than elderly people living in low self-determination nursing homes (Vallerand, *et al.*, 1989). It has also been seen previously that those having a higher external locus of control tend to have less practical coping, which may contribute to the increased levels of depression and anxiety observed in elderly individuals living in low self-determination nursing homes (Krause, 1986). Positive psychology variables between the two groups, such as hope,

optimism, self-efficacy, and resilience, have been explored, indicating significant differences in their functioning (Gupta & Singh, 2019). However, there is a dearth in the literature on how these different variables of positive psychology and locus of control together impact the coping styles and psychopathology of the older population, keeping in mind their living arrangements.

Method

Sample

The present The study is a cross-sectional study conducted at Shree Ambica Niketan Trust Vrudhashram, Surat. A total of 50 elderly people aged 65 years and older were selected for the study using purposive sampling. Twenty-five participants were selected from the retirement home in Surat, and another twenty-five were selected from a regular home in Delhi. The present study hypothesised that there would be no significant difference in depression, anxiety, stress, locus of control, ways of coping, and psychological capital between retirement homes and regular homes.

Tools Used

Rotter's Internal-External Locus of Control Scale (Rotter, 1966) consists of 29 items, which include six filler items. It is a forced-choice test in which Rotter's personality is divided into two classifications. Those who believe that rewards and punishments result from their actions are internal, while those who think such consequences come from outside forces beyond their control are external.

The Adult Hope Scale, developed by Snyder *et al.* (1991), is a 12-item scale based on Snyder's cognitive model of hope, which says 'a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy) and (b) pathways (planning to meet goals)' (Ibid).

The General Self-Efficacy Scale is a self-report measure consisting of 10 items developed by Schwarzer & Jerusalem (1995). It uses a 1-4 Likert scale, with scores ranging from 10 to 40, where higher scores indicate greater self-efficacy.

The Resilience Scale, developed by Wagnild & Young (1993), is a 25-item scale that measures five components of resilience among individuals: equanimity, perseverance, self-reliance, meaningfulness, and existential aloneness. The score ranges from 25 to 175, with a score above 145 indicating moderately high to high resilience, between 125 and 145 indicating moderately low to moderate resilience, and below 125 indicating low resilience.

The Life Orientation Test-Revised (LOT-R), developed by Scheier *et al.*, (1994), is a 10-item scale that measures an individual's level of optimism. It is a 5-point rating scale from 0 (strongly disagree) to 4 (strongly agree). The interpretation of the score indicates that scores of 0-13 reflect low optimism (high pessimism), 14-18 indicate moderate optimism, and 19-24 signify high optimism (low pessimism).

The Shortened Ways of Coping Scale, developed by Hatton & Emerson (1995), measures two types of coping styles: wishful thinking and practical thinking. It is a 14-item scale, with 7 items for each coping style. It is scored on the Likert scale of 1 to 4, in which a higher score indicates a higher use of that kind of coping.

The Depression Anxiety and Stress Scale-21 (DASS-21) is a short version of the 42-item scale developed by Lovibond & Lovibond (1995) to measure the emotional states of three dimensions: depression, anxiety, and stress experienced by both normal subjects and clinical populations. Responses are recoded on a Likert scale from 0 (never) to 3 (almost always), and the scores indicate severity as normal, mild, moderate, severe, or very severe across the three dimensions.

Procedure

Permission from the Institutional Ethics Committee at SGT University was subsequently obtained, as was approval from the Shree Ambica Niketan Trust Vrudhashram in Surat for data collection. Consent was obtained after explaining the study's objective to all 50 participants. They were administered Rotter's Internal-External Locus

of Control Scale, The Adult Hope Scale, The General Self-Efficacy Scale, The Resilience Scale, The Life Orientation Test-Revised, The Shortened Ways of Coping Scale, and The Depression Anxiety and Stress Scale-21. The Statistical Package for Social Sciences (SPSS) 16.0 for Windows was used to analyse the descriptive statistics, and the independent sample “t” was analysed to compare depression, anxiety, stress, locus of control, ways of coping, and psychological capital between retirement homes and regular homes.

Results

Table 1
Socio-demographic variables of the groups

Variables		Retirement Home Mean $\pm$ SD/n% n=25	Regular Home Mean $\pm$ SD/n% n=25
Age		73.52 $\pm$ 6.23	75.60 $\pm$ 6.18
Education		9.48 $\pm$ 4.07	11.64 $\pm$ 5.36
Gender	Male	17(68%)	12(48%)
	Female	8(32%)	13(52%)
Marital Status	Married	8(32%)	11(44%)
	Unmarried	3(12%)	1(4%)
	Widow	12(48%)	12(48%)
	Divorce	2(8%)	1(4%)
Number of children	No children	7(28%)	2(8%)
	1-2 children	11(44%)	9(36%)
	3 and above children	7(28%)	14(56%)
Religion	Hindu	25(100%)	20(80%)
	Muslim	0(0%)	3(12%)
	Other	0(0%)	2(8%)
Chronic Medical Disease	Yes	16(64%)	16(64%)
	No	9(36%)	9(36%)
Psychiatric history	Yes	1(4%)	0(0%)
	No	24(96%)	25(100%)

Note : N=50 (n=25 for each group)

Table 1 shows the sociodemographic variables for the Participants. The ages of the people living in retirement homes and regular homes are the same. The distribution of males is higher in the retirement home than in the regular home. Most people are widowed, with 48% in both retirement homes and regular homes, while the least number of individuals are unmarried, with 12% in retirement homes and 4% in regular homes. 64% people have some chronic medical disease, and 36% with no medical condition in either of the groups.

Table 2

Comparison of depression, anxiety, stress, locus of control, way of coping, and psychological capital between retirement homes and regular homes

Variables	Retirement Homen =25Mean $\pm$ SD	Regular Home n=25Mean $\pm$ SD	t	df	p
Depression	2.48 $\pm$ 1.32	2.32 $\pm$ 1.24	0.43	48	0.66
Anxiety	1.36 $\pm$ 1.70	3.04 $\pm$ 4.55	1.72	48	0.09
Stress	3.12 $\pm$ 3.00	4.80 $\pm$ 6.29	1.20	48	0.23
Locus of control	10.88 $\pm$ 4.95	8.00 $\pm$ 4.51	2.14	48	0.03*
Ways of Coping Wishful	12.28 $\pm$ 4.54	10.44 $\pm$ 3.22	1.65	48	0.10
Ways of Coping: Practical	18.36 $\pm$ 5.21	21.20 $\pm$ 5.09	1.94	48	0.05*
Hope	47.64 $\pm$ 12.12	52.04 $\pm$ 8.63	1.47	48	0.146
GSE	32.80 $\pm$ 7.24	33.92 $\pm$ 4.93	0.63	48	0.526
Resilience	13.80 $\pm$ 23.86	14.51 $\pm$ 17.69	1.20	48	0.234
LOT	8.88 $\pm$ 4.01	9.32 $\pm$ 5.81	0.311	48	0.757

*Significant at .05

Table Figure 2 shows the Comparison of depression, anxiety, stress, locus of control, coping style, and psychological capital between retirement homes and regular homes. There is no significant difference in depression, anxiety and stress between the two groups. Nevertheless, there is a significant difference in the locus of control between the two groups of retirement homes and regular homes. The

regular elderly people at home show a higher internal locus of control than those staying in a retirement home. There is a significant difference in coping styles between the two groups: the retirement home and the regular home. People living in regular homes tend to use more practical thinking than those living in retirement homes, which may contribute to their higher internal locus of control and more effective coping strategies in daily life.

Discussion

The present study found that one of the samples had a psychiatric illness. Previous studies also suggest the decline in psychiatric illnesses in the later stage of life (Westerhof ad Keyes 2009). Further, there was no difference in the depression, anxiety and stress in both groups; this finding was in accord with the previous study (Godoy-Izquierdo *et al.*, 2012). In contrast, another study states that elderly people staying in old age homes exhibit higher levels of stress, depression and anxiety than those living in regular homes because of having higher liberty in the living conditions and closer contact with loved ones (Singh *et al.*, 2017). Given the mixed literature on the current findings, one should interpret the results with caution.

The present study found that people living at home show a higher internal locus of control than those living in retirement homes. This finding also confirms the previous one, which suggests that institutionalised older people tend to have a higher external locus of control due to low self-esteem and the perception that the environment and outcomes are not dependent on their actions; thus, they have little control over things (Bensink *et al.*, 1992).

The present study also found that elderly people in their regular homes tend to exhibit higher levels of practical thinking than those in retirement homes. A similar finding to that of the current research suggests that the elderly living in old age homes used more maladaptive coping than those staying with families (Prashad & Tufail, 2014), indicating that the environment significantly influences their coping strategies and overall mental health.

The present study also measured psychological capital, which comprises hope, self-efficacy, resilience, and optimism, and found that it does not differ between the retirement home and the regular home. Previous studies indicate that noninstitutionalized elderly individuals exhibit moderately higher levels of hope compared to their institutionalised counterparts (Gupta & Singh, 2019). Earlier research also indicates that noninstitutionalized participants reported significantly stronger self-efficacy than institutionalised elderly people. Resilience is greater in noninstitutionalized adults than in institutionalised adults (Azeem & Naaz, 2015). A previous study on optimism confirms the current finding that there is no significant difference in optimism between institutionalised and non-institutionalised older adults (Lara *et al.*, 2012).

Conclusion

The present study confirms a significant difference between the two groups in locus of control, with people in retirement homes showing a higher external locus of control than those in regular homes. A significant difference was also found in the coping strategies between the elderly living in retirement homes and those in regular homes, with the latter group using more practical coping methods. The current study shows that there is a deficit in coping strategies among the elderly staying in retirement homes, and they feel they have less control over their lives. This result indicates that an effective intervention strategy is needed to enhance problem-coping skills among those living in regular homes. The present study has a few limitations, including reliance on self-report inventories, which may have led to socially desirable responses from participants. Furthermore, the sample was not randomly selected.

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Role of Social Support Networks and Well-Being of the Elderly, Delhi NCT

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ABSTRACT

Population ageing has significant implications for the social support networks of the elderly, which help them manage and navigate life transitions. This study examined the role of social support networks in shaping the well-being of elderly individuals. Using a mixed-method descriptive research design, data were collected from 60 elderly individuals, 30 from rural areas (13 males and 17 females) and urban areas (14 males and 16 females), ages varying from 60 years and above from the National Capital Territory (NCT) of Delhi, through a semi-structured questionnaire and the Multidimensional Scale of Perceived Social Support (MSPSS). The findings revealed comparable rural-urban differences in family structure, economic dependency, and perceived sources of support. Despite changes in family arrangements and other social support systems, the overall level of perceived social support among the elderly in both urban and rural areas of Delhi was moderate.

Keywords : Social Support, Well-being, Elderly, Rural elderly, Urban elderly.

The present paper has explored the social support networks and community resources available and their role in the well-being of the elderly across urban and rural areas in the National Capital Territory (NCT) of Delhi. The literature review given below builds up the case for the selected argument.

Family Support and Elderly Well-Being

Family support remains the primary and most influential source of social support for elderly individuals in India. Several studies have established a strong association between family-based support and positive mental health outcomes in later life. Research conducted in rural West Bengal found that elderly individuals with low perceived family support were significantly more likely to experience depressive symptoms, highlighting the protective role of familial care and emotional reassurance (Banerjee *et al.*, 2023). Similarly, studies indicate that co-residence with children, emotional bonding within families, and regular interaction with family members contribute positively to life satisfaction and psychological stability among older adults (Wu, 2022). However, a gradual transformation in family support structures due to urbanisation, migration, and changing intergenerational relationships has been observed. Felix *et al.* (2022), in a scoping review on neglect of the elderly by nuclear family members, highlighted that while family remained central to elderly care, emotional neglect and feelings of being undervalued were increasingly reported, particularly among widows and women from lower socio-economic backgrounds. These findings suggest that although family support remains structurally present, its emotional depth and consistency may be weakening, especially in urban contexts.

Friendship Networks and Peer Support

Beyond family, friendships and peer relationships play a crucial role in shaping emotional well-being in old age. Studies indicate that peer support provides companionship, emotional expression, and

a sense of belonging, particularly when family support is limited. A study conducted by Asnitha *et al.*, (2025) in Tamil Nadu demonstrated that elderly individuals with stronger social networks, including friends and neighbours, reported significantly higher levels of life satisfaction than those with weak or restricted networks. The role of friends is particularly prominent in rural settings, where long-standing relationships and close-knit communities foster emotional intimacy and mutual support. Singh *et al.*, (2016) found that rural elderly benefited from stronger peer ties and neighbourly relationships, which compensated for limited formal services and economic constraints. In contrast, urban elderly reported comparatively weaker peer support due to spatial fragmentation, reduced social interaction, and lifestyle-related constraints, increasing their vulnerability to social isolation. Bincy *et al.*, (2023) have also reported that although urban elderly may have access to more social spaces, the quality and continuity of peer relationships appear lower, increasing vulnerability to loneliness and emotional isolation. Similar findings have been reported by Kumari *et al.*, (2021) in urban Indian studies, showing that reduced informal social interaction is associated with poorer mental well-being among older adults. These findings reflect broader trends of social isolation among the urban elderly, despite greater population density and access to social spaces.

Community Support and Social Participation

Community-level support and social participation have emerged as significant predictors of elderly well-being. Participation in community activities, religious gatherings, and local social groups has been shown to enhance emotional well-being and life satisfaction among older adults. A large-scale national study found that social participation independently improved subjective well-being among elderly individuals, even after controlling for family relationships and economic factors (Singh *et al.*, 2016). This highlights the role of community engagement as a distinct and valuable source of social support.

Community support is particularly relevant in rural areas, where informal networks and collective social life remain strong. Khandre *et al.*, (2023) reported that elderly individuals in rural central India with higher levels of perceived community and social support exhibited better well-being. The authors emphasised the need to strengthen intergenerational interactions and community-based social platforms to enhance support systems for the elderly. Such findings reinforce the importance of community cohesion in promoting healthy ageing.

Rural Urban Differences in Social Support and Well-Being

The literature consistently highlights significant rural-urban differences in the structure and availability of social support. While urban elderly often have better access to healthcare services and financial resources, they are more likely to experience loneliness and emotional isolation due to nuclear family arrangements and weakened community ties (Kumari *et al.*, 2021). Conversely, rural elderly benefit from stronger familial and community bonds, although these advantages are often accompanied by economic dependency and limited institutional support. Bramhankar *et al.*, (2023) found that although urban elderly reported marginally higher life satisfaction overall, mental health emerged as a critical determinant of well-being in both rural and urban settings. The study emphasised that strengthening social support networks is essential for improving life satisfaction among the elderly, regardless of settlement type.

Social support systems in India vary between rural and urban settings. Social support networks play a critical role in shaping the well-being of elderly individuals, particularly within the Indian socio-cultural context, where family has traditionally been the primary source of care (Samanta, 2015). However, processes of urbanisation, migration, and socio-economic transition have substantially altered these support systems. The decline of joint family structures and the growing prevalence of nuclear households, especially in urban settings, have resulted in reduced intergenerational interaction and weakened emotional support for

many elderly individuals. Consequently, loneliness, emotional neglect, and feelings of social exclusion have emerged as significant concerns among the urban elderly.

Rationale of the study/research gap: The literature review highlights that several social and demographic factors influence social support systems and the well-being of the elderly in India; however, studies analysing the role of intersectionality in creating or eroding the social support of the elderly have not been fully explored. Additionally, the ways older adults cope with and seek support for the everyday pressures also remain insufficiently explored. These gaps provided a reason to examine the type and level of social support available to the elderly and its role in shaping well-being in NCT Delhi.

Objectives:

1. To understand the social and demographic profile of the elderly in rural and urban settings of the National Capital Territory (NCT), Delhi.
2. To understand the type and level of social support and community resources available for the elderly.
3. To examine the role of various social support systems in the well-being of the elderly.

Method

The study employed a mixed-method research approach within a descriptive design conducted in the NCT of Delhi. The sample included 60 elderly residents, with equal representation from rural (N=30; 13 males, 17 females) and urban (N=30; 14 males, 16 females) areas. Participants were selected through stratified random sampling from Mangolpur Khurd and Rohini Sector-3, ensuring diversity in age, socioeconomic status, living arrangements, and social support systems.

Tools Used

Data collection involved a semi-structured questionnaire on demographics and social support networks, along with the

Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988), which was used to assess support levels from family, friends, and significant others, providing quantitative insights into perceived social support.

The Multidimensional Scale of Perceived Social Support (MSPSS) contains 12 items, each rated on a scale of 1 to 7, with 1 indicating “strongly disagree” and 7 indicating “strongly agree”. The findings revealed a complex and differentiated pattern of perceived social support among the elderly. The level of support is derived from three types or sources: family, friends, and ‘significant others’. Each of them presented differences between urban and non-urban settings. The combined mean score for all the types of social support was 4.77 for rural elderly and 4.81 for urban elderly, highlighting the varied perceptions of support across contexts and inviting further reflection.

Statistical Analysis

The study employed both quantitative and qualitative analytical procedures in line with the mixed-method research design. Descriptive statistics were created from Quantitative data, while Qualitative data was content analysed. Both types of data were later merged and triangulated to strengthen the interpretation of results.

The Independent Samples t-test was conducted to compare perceived social support between rural and urban elderly respondents across the dimensions of the Multidimensional Scale of Perceived Social Support (MSPSS). The findings revealed that all p-values were greater than 0.05, indicating no statistically significant difference between rural and urban elderly respondents in overall perceived social support. The rural elderly respondents reported slightly higher support from friends, while urban elderly respondents reported comparatively higher family support and support from significant others. The results suggest that elderly individuals in both rural and urban areas experience comparable levels of perceived social support, though the nature and source of support differ slightly across contexts.

Ethical considerations were rigorously upheld throughout the study to ensure compliance with research standards and protect participants' rights.

Participation was voluntary, with respondents able to withdraw at any point. Confidentiality and anonymity were maintained, and all data were used solely for research purposes, aligning with ethical standards.

Findings

This section presents the key findings on demographic details, the types and levels of perceived social support among rural and urban elderly respondents, and their role in their well-being. The details are encapsulated in the socioeconomic profile as described below:

Demographic Details

Table 1
Demographic Profile of Elderly Respondents

S. No.	Variable	Rural (n-30)		Urban Rural (n-30)	
	Gender				
1.	Gender	Male	13	Male	14
		Female	17	Female	16
		Total	30	Total	30
	Age Group (in years)				
2.	60–69	6	11	4	10
	70–79	5	5	9	3
	80+	2	1	2	2
		13	17	15	15
	Marital status				
3.	Married	4	12	12	10
	Widowed	7	3	3	4
	Single	1	1	0	1
	Divorced / Separated	0	1	0	0
		12	17	15	30

Education level

4.	No formal education	3	10	2	3
	Primary	5	2	1	2
	Secondary	2	2	5	3
	Graduate	3	3	5	5
	Postgraduate & above	0	0	2	2
		13	17	15	15

Table 1 presents the gender, age groups, marital status, and educational levels of elderly respondents from urban and rural areas of the NCT of Delhi. The gender composition of the sample is relatively balanced, with a slightly higher proportion of females in both settings. Most respondents are in the 60-79 age group, indicating that the majority are in the younger segment of old age, while a smaller proportion falls under the 80+ category. Educational attainment shows a clear rural-urban disparity, with higher levels among urban elderly, while a substantial proportion of rural elderly have no formal education.

Table 2
Economic Profile of Elderly Respondents

S. No	Variable	Category	Urban (n-30)	Rural (n-30)	Total (n-60)
1.	Occupation	Working	9	6	15
	Retired	10	16	26	
	Homemaker	10	5	15	
	Unemployed	1	3	4	
2.	Monthly income/ Pension	< ₹ 5,000	5	17	22
		₹ 5,000 – ₹ 10,000	6	7	13
		₹ 10,001 – ₹ 20,000	8	4	12
		> ₹ 20,000	11	2	13
3	Economic Dependency	Independent	21	8	29
		Partially dependent	6	10	16
		Fully dependent	3	12	15

Table 2 presents the economic profile of many respondents. It was observed that most of them are retired in both settings, but the proportion of rural elderly is high. Occupational engagement among women is low, as many of them were and still are homemakers, whereas only 4 men are non-working. Clear rural-urban disparities are evident in income levels, as a large proportion of rural elderly earn less than ₹ 5,000 per month. In contrast, the urban elderly are more likely to be represented in higher-income brackets. These differences are reflected in economic dependency patterns: most urban elderly are economically independent, whereas a majority of rural elderly are partially or fully dependent on family members, indicating comparatively lower financial security among rural elderly.

Table 3
Family and Housing Characteristics of Elderly Respondents

S No.	Variable	Category	Urban (n=30)	Rural (n=30)	Total (n=60)
1.	Family type	Nuclear	23	13	36
		Joint	7	17	24
2.	Living Arrangement	With spouse	14	4	18
		With children	11	23	34
		Alone	3	2	5
		With relatives/ others	2	1	3
3.	Housing condition	Owned	18	13	31
		Rented	8	13	21
		Shared	4	4	8

Table 3 presents the family type, living arrangements, and housing conditions of the respondents from urban and rural areas of the NCT of Delhi. Most urban elderly live in nuclear families, while rural elderly predominantly reside in joint families. Living arrangements further highlight that the elderly in urban areas commonly live with their spouses or children. In contrast, a small

Social Support Networks and their role

FAMILY SUPPORT – AVERAGE MEAN SCORE: 4.69 (Moderate Support)										
Item (Subscale)	% of Respondents (1 – 7)							Mean (M)	SD	Interpretation
	1	2	3	4	5	6	7			
1. My family really tries to help me	3.3%	3.3%	16.7%	23.3%	20.0%	20.0%	13.3%	4.67	1.56	Moderate Support
2. I get the emotional help and support I need from my family	3.3%	3.3%	6.7%	16.7%	36.7%	23.3%	10.0%	4.90	1.40	Moderate Support
3. I can talk about my problems with my family	6.7%	0.0%	10.0%	16.7%	23.3%	26.7%	16.7%	4.67	1.63	Moderate Support
10. My family is willing to help me make decisions	3.3%	6.7%	3.3%	23.3%	30.0%	20.0%	13.3%	4.63	1.51	Moderate Support

FRIENDS SUPPORT – AVERAGE MEAN SCORE: 4.77 (Moderate Support)										
Item (Subscale)	% of Respondents (1 – 7)							Mean (M)	SD	Interpretation
	1	2	3	4	5	6	7			
4. My friends really try to help me	3.3%	13.3%	3.3%	30.0%	16.7%	13.3%	20.0%	4.63	1.75	Moderate Support
5. I can count on my friends when things go wrong	3.3%	3.3%	10.0%	30.0%	33.3%	10.0%	10.0%	4.57	1.38	Moderate Support
6. I have friends with whom I can share my joys and sorrows	3.3%	0.0%	6.7%	33.3%	26.7%	23.3%	6.7%	4.77	1.28	Moderate Support
11. I can talk about my problems with my friends	0.0%	3.3%	10.0%	20.0%	23.3%	26.7%	16.7%	5.10	1.37	High Support

SIGNIFICANT OTHERS SUPPORT – AVERAGE MEAN SCORE: 4.83 (Moderate Support)										
Item (Subscale)	% of Respondents (1 – 7)							Mean (M)	SD	Interpretation
	1	2	3	4	5	6	7			
7. There is a special person who is around when I am in need	5.3%	13.3%	10.0%	23.3%	16.7%	23.3%	10.9%	4.47	1.68	Moderate Support
8. There is a special person with whom I can share my joys and sorrows	0.0%	6.7%	18.1%	23.3%	16.7%	16.7%	20.8%	4.80	1.58	Moderate Support
9. I have a special person who is a real source of comfort to me	0.0%	0.0%	23.3%	33.3%	13.3%	20.0%	10.9%	4.60	1.33	Moderate Support
12. There are people in my life who really care about me	0.0%	6.7%	3.3%	10.0%	30.0%	20.0%	30.0%	5.43	1.45	High Support

1.0 – 2.9				3.0 – 4.0				5.1 – 7.0			
Low Support				Moderate Support				High Support			

Figure 2: Level of Social Support among Rural Elderly

FAMILY SUPPORT – AVERAGE MEAN SCORE: 4.69 (Moderate Support)										
Item (Subscale)	% of Respondents (1 – 7)							Mean (M)	SD	Interpretation
	1	2	3	4	5	6	7			
1. My family really tries to help me	3.3%	3.3%	16.7%	23.3%	20.0%	20.0%	13.3%	4.67	1.56	Moderate Support
2. I get the emotional help and support I need from my family	3.3%	3.3%	6.7%	16.7%	36.7%	23.3%	10.0%	4.90	1.40	Moderate Support
3. I can talk about my problems with my family	6.7%	0.0%	10.0%	16.7%	23.3%	26.7%	16.7%	4.97	1.63	Moderate Support
10. My family is willing to help me make decisions	3.3%	6.7%	3.3%	23.3%	30.0%	20.0%	13.3%	4.83	1.51	Moderate Support
FRIENDS SUPPORT – AVERAGE MEAN SCORE: 4.77 (Moderate Support)										
Item (Subscale)	% of Respondents (1 – 7)							Mean (M)	SD	Interpretation
	1	2	3	4	5	6	7			
4. My friends really try to help me	3.3%	13.3%	3.3%	30.0%	16.7%	13.3%	20.0%	4.63	1.75	Moderate Support
5. I can count on my friends when things go wrong	3.3%	3.3%	10.0%	30.0%	33.3%	10.0%	10.0%	4.57	1.38	Moderate Support
6. I have friends with whom I can share my joys and sorrows	3.3%	0.0%	6.7%	33.3%	26.7%	23.3%	6.7%	4.77	1.28	Moderate Support
11. I can talk about my problems with my friends	0.0%	3.3%	10.0%	20.0%	23.3%	26.7%	16.7%	5.10	1.37	High Support
SIGNIFICANT OTHERS SUPPORT – AVERAGE MEAN SCORE: 4.83 (Moderate Support)										
Item (Subscale)	% of Respondents (1 – 7)							Mean (M)	SD	Interpretation
	1	2	3	4	5	6	7			
7. There is a special person who is around when I am in need	3.3%	13.3%	10.0%	23.3%	16.7%	23.3%	10.0%	4.47	1.68	Moderate Support
8. There is a special person with whom I can share my joys and sorrows	0.0%	6.7%	16.7%	23.3%	16.7%	16.7%	20.0%	4.80	1.58	Moderate Support
9. I have a special person who is a real source of comfort to me	0.0%	0.0%	23.3%	33.3%	13.3%	20.0%	10.0%	4.60	1.33	Moderate Support
12. There are people in my life who really care about me	0.0%	6.7%	3.3%	10.0%	30.0%	20.0%	30.0%	5.43	1.45	High Support
1.0 – 2.9 Low Support 3.0 – 5.0 Moderate Support 5.1 – 7.0 High Support										

1.0 – 2.9 Low Support 3.0 – 5.0 Moderate Support 5.1 – 7.0 High Support

Family support : Family support was calculated from the MSPSS-1, 2, 3, and 10 items among both rural and urban elderly respondents and remained at a moderate level, with a mean score of 4.64 in rural areas and 4.84 in urban areas.

The respondents from urban areas receive support such as timely medication supervision, accompaniment to doctors, and assistance with household tasks. For instance, one respondent mentioned, "My youngest son reminds me to take my medicines and checks if I have eaten on time," indicating the instrumental nature of family support. The busy schedules of adult children make family support limited in urban living. The social support offered by family members to the elderly resulted in a moderate level of social support in the urban areas. It can be attributed to characteristics of urban living, such as nuclear family arrangements, time constraints, and work commitments.

In rural areas, family members were found to provide support in multiple forms, including emotional reassurance, help with difficulties, open communication about personal problems, and involvement in decision-making. However, in such areas, it was found to be influenced by factors including economic pressures, work-related migration of younger family members, and increased responsibilities within rural households, which limit consistent caregiving.

Friend support : The mean scores of items related to friend support (MSPSS-4, 5, 6, 11) are 5 for rural and 4.77 for urban elderly. Peer relationships play a significant role in fulfilling emotional needs that may not always be addressed within family interactions. A moderate level of social support was available to both urban and rural elderly, with rural elderly scoring slightly higher than urban elderly.

One of the respondents described friends as trusted listeners and sources of comfort, as reflected in statements such as, *"I talk to my neighbour, who has been with me for 35 years, whenever I feel sad or worried,"* highlighting the role of friendships in emotional regulation, stress relief, and a sense of belonging. Rural elderly rely on friends to seek help during times of difficulty, share emotional experiences, discuss personal problems, and provide companionship.

The urban respondents also acknowledged having friends whom they can rely on and talk to. However, the intensity and consistency of this support appeared to be marginally lower than in rural areas. Weaker neighbourhood ties, greater social mobility, and limited opportunities for regular interaction restrict the depth of friendships in later life, leading to a withering of regular communication with close friends.

Significant others : Significant others, including neighbours, community members, or individuals from religious or local social spaces, functioned as supplementary support providers, offering reassurance, occasional help, and social recognition, especially when

family members were unavailable. The mean scores for ‘significant others’ related items (MSPSS-7,8,9,12) are 4.67 for rural elderly and 4.83 for urban elderly, highlighting moderate support from significant others. These included at least one trusted person who provides comfort, emotional support, and a sense of care to the elderly during times of need. Many respondents in both urban and rural areas of Delhi reported that active social engagement with their groups in parks and at religious gatherings keeps them highly engaged. They feel lonelier when they are unable to participate in such activities.

One of the female respondents from urban Delhi reported that during COVID-19, she was not allowed to attend evening prayers at the nearby mandir and had to stay home. She recalled that, *“although all the family members were present, I still felt lonely and depressed; it was a difficult and lonely phase for me”*. The moderate level in both the urban and rural spaces suggests that such support is not consistently available for all respondents.

A male respondent from rural Delhi highlighted, *“My participation in community activities with the fellow villagers put me engaged and less lonely”*. Thus, significant others appear to play a complementary role in both rural and urban settings, reinforcing emotional well-being.

Table 4
Independent Sample t-test(Perceived Social Support among Rural and Urban Elderly)

MSPSS Dimension	Mean for Rural Elderly	Mean for Urban Elderly	t-value	p-value	Interpretation
Family	4.64	4.84	-0.586	0.560	Not Significant
Friends	5.00	4.77	0.810	0.421	Not Significant
Significant Others	4.67	4.83	-0.496	0.622	Not Significant
Overall Mean	4.77	4.81	-0.155	0.877	Not Significant

Thus, with a moderate level of perceived social support in both rural and urban areas, the elderly's need for companionship is met. They were not lonely or isolated; hence, despite spatial distances, the elderly were living satisfied lives, albeit with some differences in the types of social support.

Analysis and Discussion

Social support remains a crucial determinant of well-being in old age, significantly shaping emotional stability, coping capacities, and overall quality of life among the elderly. With this key research question, this study examined the role of social support networks in shaping the well-being of elderly individuals in rural and urban areas of Delhi. It analysed the contributions of family, friends, and significant others in rendering emotional, social, and psychological support through MSPSS.

Chronologically, it is evident that the elderly residing in the NCT of Delhi are relatively younger, more literate, and living with their spouses, with no significant rural–urban disparity. This demographic reality accounts for the moderate level of family support for the elderly (rural elderly: 4.64; urban elderly: 4.84). The respondents remain physically active, participate in most activities, and continue to receive support from their families. These findings resonate with earlier studies (Felix *et al.*, 2022), which suggest that traditional family-based care persists even as the capacity to fulfil these roles declines due to socio-economic and structural pressures.

In the second dimension, support from friends was at a moderate level (Rural elderly: 5; Urban elderly: 4.77), which challenges the findings of Kumari *et al.*, (2021), and Bincy *et al.* (2022) who report that elderly individuals often experience isolation due to weak peer ties and limited neighbourly relationships. In rural settings, friendships and neighbourly bonds weave cohesive communities, enabling friends to serve as a vital source of emotional support and companionship. In contrast, despite weaker support from friends, fragmented neighbourhoods, and high residential mobility,

which reduce social connectedness, the presence of informal assistance and professional service providers creates opportunities for interpersonal interactions.

The third type of social support was from ‘significant others’, who are connections created beyond family and friends. The predominance of a moderate level of social support was found again (Rural elderly: 4.67; Urban elderly: 4.84). The role of these networks is to provide opportunities for regular interaction with trusted individuals, such as group coordinators, spiritual leaders, or long-standing acquaintances. These relationships were perceived as sources of emotional comfort, reassurance, and a sense of belonging. The findings substantiate the observations of recent studies (Khandre *et al.*, 2023). Hence, owing to the moderate level of social support available to the elderly, they were able to maintain a sense of well-being.

Conclusion

Social support is an important determinant of the well-being of the elderly, as it optimises the ageing process. The presence of family, friends, and significant others made them feel needed. Across geographical boundaries, the level of social support was moderate, with no statistically significant differences in the mean values for the three types of support perceived by the elderly. A sense of satisfaction was expressed, reflecting both the continuity and the limitations of existing support systems.

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Cultural Transformation and Elderly Experiences among the Gujar Community in Jammu: A Reflexive Qualitative Inquiry

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ABSTRACT

The present study aimed to explore the Gujar community in Jammu (J&K), which has undergone significant transformations due to rapid modernisation, educational expansion, migration, technological advancement, and socio-economic mobility. The lived experiences of 30 elderly Gujjars, both male (N=18) and female (N=12), aged between 60 and 76 years, were selected through purposive sampling. To understand the community's response to these changes, data were collected through semi-structured interviews, oral narratives, informal conversations, and non-participant observation, and analysed using thematic analysis within a reflexive interpretive framework. The findings indicate that elderly Gujjars perceive modernisation as a complex and contradictory process. While improvements in education, healthcare, transportation and communication technologies have enhanced living

standards and created new opportunities for younger generations, they have also contributed to the weakening of traditional support systems, indigenous knowledge practices, collective lifestyles, and customary authority structures. Respondents expressed concerns regarding declining respect for elders, reduced use of the Gojri language, erosion of pastoral traditions and increasing experiences of loneliness and emotional isolation. Many elderly Gujjars demonstrated resilience and adaptability, which contributes to a broader understanding of ageing and cultural transformation. The study highlights the voices, experiences, and adaptive strategies of elderly Gujjars in a rapidly changing social environment, emphasising its relevance for sociological research and indigenous community studies.

Keywords : Cultural Transformation, Elderly Gujjars, Ageing, Indigenous Knowledge, Modernisation, Jammu, Intergenerational Relations.

Ageing is a social and cultural process shaped by changing family structures, community values and socio-economic conditions. Among tribal communities, elders have traditionally served as custodians of cultural knowledge, social norms and collective memory. The Gujjars of Jammu, one of the largest Scheduled Tribe communities in the region, have historically maintained a distinct identity rooted in pastoral traditions, kinship solidarity, oral traditions and indigenous knowledge systems. However, processes of modernisation, education, migration, urbanisation, and technological advancement have brought significant changes to their socio-cultural life. These transformations have altered traditional occupations, family relationships, language practices and the status of elders within the community. Against this backdrop, the present study explores how elderly Gujjars perceive and experience cultural transformation in Jammu. By focusing on their lived experiences,

the study contributes to an understanding of ageing, cultural continuity, and social change within a rapidly transforming tribal society.

Review of Literature

Existing literature suggests that modernisation, education, migration and technological advancement have significantly transformed traditional and tribal societies by reshaping cultural practices, family structures, identities and social relations (Srinivas, 1966; Giddens, 1991). Studies on ageing emphasise that elders play an important role in preserving cultural memory, indigenous knowledge and community values, although their status and authority often decline amid socio-economic change (Bengtson *et al.*, 2009; Lamb, 2009). Research on tribal communities highlights changing intergenerational relations, the weakening of traditional support systems, and concerns about cultural continuity and identity (Uberoi, 2004; Bhasin, 2007). Studies on the Gujjar community primarily focus on pastoralism, education, socio-economic mobility and tribal identity, while the specific experiences of elderly Gujjars in cultural transformation remain largely unexplored. This study addresses this gap by examining how elderly Gujjars perceive and experience cultural transformation in contemporary Jammu.

Theoretical Orientation

This study argues that elderly Gujjars experience ageing as a negotiated process shaped by modernisation, shifting cultural capital, kinship ties, and everyday interactions, revealing both continuity and transformation in their socio cultural identity.

Method

Sample

This study adopted a qualitative and reflexive research design to explore the lived experiences of 30 elderly Gujjars (18 males and 12 females), aged 60 years and above, in the context of socio-cultural transformation in Jammu. Participants were selected through purposive and snowball sampling techniques, and data were collected through semi-structured interviews, oral narratives, informal conversations, life

histories, and non-participant observation, all conducted in Gojri, Urdu, and Hindi. Thematic analysis was used to identify key patterns related to ageing, cultural change, identity and intergenerational relations. Reflexive field notes were maintained throughout the research process, and ethical principles of informed consent, confidentiality, voluntary participation and respect for participants' dignity were strictly observed.

Demographic Profile of the Respondents

Variable	Category	Number of Respondents	Percentage (%)
Gender Composition	Male	18	60%
	Female	12	40%
	Total	30	100 %
Age Distribution	60–65 years	9	30%
	66–70 years	8	26.7%
	71–75 years	7	23.3%
	76 years and above	6	20%
	Total	30	100 %
Occupational / Socio-Economic Background	Former pastoralists	8	26.7%
	Retired government employees	5	16.7%
	Agricultural workers	6	20%
	Homemakers	4	13.3%
	Semi-nomadic elders	3	10%
	Community elders		
	involved in customary leadership	4	13.3%
	Total	30	100 %
Educational Background	Non-literate	11	36.7%
	Primary education	10	33.3%
	Secondary education	6	20%

	Higher educational exposure	3	10%
	Total	30	100 %
Family Arrangement	Joint families	14	46.7%
	Semi-joint families	9	30%
	Nuclear families	7	23.3%
	Total	30	100 %

Tool used

A semi-structured interview schedule was used as the primary data-collection tool in the study. The interview schedule was flexible, allowing respondents to freely narrate their experiences, opinions, and emotions while enabling the researcher to explore themes relevant to the study's objectives. The questions were designed around major thematic areas such as personal background, cultural transformation, language and identity, family and intergenerational relations, traditional knowledge systems, experiences of ageing, and the impact of modernisation. Respondents were asked about changes in traditional customs, the status of the Gojri language, shifting family relations, the role of elders in decision-making and the transmission of indigenous knowledge across generations. The interview schedule also explored emotional experiences related to old age, including loneliness, social support, and coping mechanisms, as well as respondents' views on the positive and negative impacts of modernisation within the Gujjar community. The flexible and conversational structure of the interview process encouraged participants to speak openly and reflectively in their own words, thereby enhancing the depth, authenticity and richness of the qualitative data collected during the fieldwork.

Findings

Transforming Cultural Landscapes

The narratives of elderly Gujjar respondents highlighted significant changes in their community's cultural life. Participants recalled earlier times as periods of strong kinship ties, collective living, shared responsibilities and rich cultural traditions. They expressed concern

that modernisation, education, urbanisation, and technological advancements have gradually weakened traditional customs, interpersonal relationships and cultural continuity. Many elders felt that younger generations are becoming increasingly detached from indigenous values, oral traditions and the collective identity that once formed the foundation of Gujjar society.

One elderly participant explained:

“Earlier, after dinner, the whole family used to sit together. Elders told stories about our ancestors, migration routes, forests, and old traditions. Children listened carefully and learned respect. Now everyone is busy with mobile phones, television, and work outside the home. Even when families sit together, nobody talks properly.”

Another respondent stated:

“In our younger days, we never felt alone because neighbours and relatives were always around us. Weddings, festivals, and even daily work were done collectively. Today, people live separately and think mostly about their own families.”

A seventy-year-old participant reflected emotionally on changing family relationships:

“Earlier, the advice of elders was valued in every household decision. Today, children are educated and earning money, which is good, but they do not seek guidance from elders the way they used to. Sometimes we feel our words no longer carry importance.”

Participants also spoke extensively about the decline of traditional customs and ritual practices within the community. Many elders observed that younger generations preferred modern celebrations and urban lifestyles over customary Gujjar traditions. Traditional songs, folk practices, and community gatherings were described as gradually disappearing from everyday life.

One elderly woman remarked:

“We used to celebrate marriages for many days with traditional songs, dances, and community participation. Women

sang Gojri songs throughout the night. Now marriages are completed quickly in a modern style with DJs and outside customs. The old atmosphere has almost disappeared."

Another participant expressed concern about changing dress patterns and cultural behaviour:

"Young boys and girls want to copy city culture. They feel shy speaking our language or wearing traditional clothes. Slowly, our identity is changing."

The decline in the use of the Gojri Language emerged as a major concern among respondents. Many participants believed that younger generations, particularly those educated in urban schools and colleges, were increasingly shifting toward Hindi, Urdu, and English in daily communication. Elders viewed language not merely as a medium of communication but as a carrier of memory, identity, and cultural belonging.

One respondent stated with disappointment:

"Our children can speak English and Hindi fluently, but many cannot speak proper Gojri anymore. When language disappears, culture also disappears slowly."

Another elderly participant observed:

"Grandchildren understand Gojri but often reply in Hindi or English. Sometimes they even laugh at old words and traditional expressions. This hurts us because language carries the history of our people."

Despite expressing concern about cultural erosion, several participants also acknowledged the positive aspects of modernisation, particularly in education, healthcare, housing, and employment opportunities for younger generations. However, many elders emphasised that material progress should not come at the cost of cultural identity and intergenerational connectedness.

As one elderly respondent explained:

"Education and jobs have improved our lives, and we are proud of our children. However, together with progress, our

traditions should also survive. Development is good only when people remember their roots.”

Intergenerational Distance and Changing Authority

Elderly members of the Gujjar Community frequently reflected upon the transformation of intergenerational relations within families and community life. Participants recalled that in earlier times, elders occupied a central position within the household and community structure. Their opinions were highly respected in matters related to marriage, property disputes, migration decisions, pastoral activities, and conflict resolution. Elders were considered custodians of wisdom, cultural traditions, and moral guidance, and younger family members were expected to follow their advice with obedience and respect. However, respondents observed that education, urban exposure, migration and economic independence among younger generations have gradually altered these traditional power relations. Many elderly participants felt that younger family members increasingly prioritise personal aspirations, careers, and individual choices over collective obligations and customary authority. Several respondents interpreted this shift as a weakening of traditional respect toward elders and a decline in intergenerational emotional closeness.

One elderly participant explained:

“Earlier, children would never make important decisions without consulting elders. Whether it was marriage, land matters, or migration, elders had the final say. Today, young people decide things on their own because they are educated and financially independent.”

Another respondent reflected with disappointment:

“In the past, even sitting in front of elders required manners and respect. Now, children answer back openly and spend more time on phones than with family members. We feel the discipline of family life has changed a lot.”

A seventy-two-year-old participant shared his emotional experience regarding changing authority within the household:

"My sons respect me and take care of my needs, but they no longer depend on my guidance the way earlier generations did. Sometimes decisions are already made before I am informed. This creates a feeling that our role in the family has become limited."

An elderly woman described how changing lifestyles and work patterns have reduced interaction between generations:

"Earlier, joint families stayed together, and grandchildren spent most of their time with grandparents. We taught them traditions, prayers, and stories. Now, children are busy with studies, coaching, and mobile phones. Even when they live in the same house, there is less emotional connection."

Despite expressing concern regarding declining authority and changing family relationships, many participants also acknowledged that intergenerational solidarity has not disappeared completely. In several households, younger family members continued to provide financial support, healthcare assistance, emotional care, and physical protection to elderly parents and grandparents. Respondents often emphasised that while forms of interaction have changed, family bonds remain important within Gujar society.

One participant remarked positively:

"Our children may think differently from us, but they still care for us during illness and old age. They provide medicines, take us to hospitals, and support us financially. The form of respect has changed, but concern for elders still exists."

Another elderly respondent stated:

"Today's generation is more educated and busy, but it does not mean they have completely forgotten their elders. Sometimes they cannot spend enough time with us because of work responsibilities, yet they continue to support the family."

These narratives indicate that intergenerational relations among Gujjars are not simply collapsing but are undergoing significant transformation under conditions of modernisation. Traditional authority structures based on age and customary knowledge are gradually being

renegotiated within changing educational, occupational and cultural contexts. While many elders experience emotional distance and declining influence, family support and intergenerational responsibility continue to persist in modified forms.

Decline of Traditional Knowledge Systems

One of the most significant concerns expressed by elderly members of the Gujar Community was the gradual decline of indigenous knowledge systems that historically shaped Gujar identity and everyday life. Participants repeatedly emphasised that traditional knowledge related to livestock management, seasonal migration, herbal medicine, forest ecology, weather prediction, oral storytelling, and customary practices is slowly disappearing as modern education, settled lifestyles, and changing occupational aspirations among younger generations expand. For many elderly respondents, traditional knowledge was not merely practical information but an important source of cultural identity, collective memory, and community survival. Elders recalled how earlier generations acquired knowledge through direct participation in pastoral life, observation of nature, and continuous interaction with experienced family members. Skills associated with caring for livestock, identifying medicinal plants, understanding mountain routes, predicting seasonal changes, and resolving community disputes were transmitted orally across generations.

One elderly participant explained:

“In earlier times, children learned everything by staying with elders during migration. We knew which plants were useful for medicine, how to protect livestock during harsh weather, and how to survive in forests and mountains. Today, very few young people are interested in learning these things.”

Another respondent reflected sadly on changing occupational aspirations:

“Young boys now want government jobs, private work, and city life. They feel pastoral work is backward and difficult. Because of this, the knowledge connected with livestock and migration is slowly disappearing.”

Several participants observed that formal education and modern employment opportunities have changed the social value attached to traditional knowledge. Skills that once ensured survival and social respect within the community are increasingly viewed as less economically rewarding than professional careers and urban occupations. As a result, younger generations often prioritise schooling and modern employment over learning indigenous practices from elders. One elderly respondent remarked:

"We are happy that our children are becoming educated, but education has also created distance from traditional life. Earlier knowledge came from experience and interaction with nature; today, knowledge comes mostly from books and mobile phones."

Another participant explained:

"Our grandchildren can operate smartphones and computers, but many of them do not know basic pastoral practices that were once essential for our community. This creates fear that our traditional wisdom may vanish completely."

The decline of oral storytelling traditions was also described as a major cultural loss. Elderly participants emphasised that stories, songs, migration memories, and folk narratives once played an important role in transmitting moral values, history, and collective identity. However, changing lifestyles and reduced intergenerational interaction have weakened these oral traditions.

One elderly woman shared emotionally:

"Earlier, children listened carefully to stories told by grandparents during evenings and migration journeys. Through stories, we taught them courage, respect, and community values. Today, children spend more time watching mobile phones and television."

Another participant observed:

"Our oral traditions are fading because people no longer have the patience to sit together and listen. When storytelling disappears, a part of our history also disappears."

Participants also spoke about the decline of indigenous healing practices and ecological knowledge. Several elders recalled that earlier generations depended heavily on herbal remedies and traditional healing methods due to limited access to hospitals and modern healthcare facilities. Although respondents appreciated the benefits of modern medicine, they feared that valuable indigenous medical knowledge would disappear without documentation or transmission.

One respondent stated:

“We knew many herbs for treating fever, wounds and animal diseases. Elders passed down these remedies over generations. Now, younger people trust only modern medicine, and this traditional knowledge is being forgotten.”

Despite expressing concern regarding cultural erosion, some participants emphasised the importance of preserving traditional knowledge alongside modern education. Elders suggested that schools, families, and community organisations should encourage younger generations to value indigenous wisdom and cultural heritage.

One participant remarked hopefully:

“Modern education is necessary, but our traditional knowledge should also be recorded and taught. Both types of knowledge are important for the future of our community.”

Another elderly respondent concluded:

“If our traditions, language, and knowledge disappear, future generations will lose connection with their roots. Development is important, but preservation of culture is equally important.”

These narratives demonstrate that the decline of traditional knowledge systems is experienced not only as a practical transformation but also as an emotional and cultural loss among elderly Gujjars. Indigenous knowledge remains deeply connected with identity, memory, dignity, and community continuity, making its erosion a significant source of anxiety for older generations living through rapid socio-cultural change.

Ageing, Isolation and Emotional Change

Experiences of ageing among elderly members of the Gujjar Community were closely linked to changes in family structures, migration patterns, and transformations in community life. Many participants spoke about feelings of loneliness, emotional isolation, and reduced social participation, particularly within nuclear households or families where younger members had migrated for education, employment, or urban settlement. Elderly respondents repeatedly emphasised that earlier forms of collective living provided emotional security, companionship, and continuous social interaction, whereas contemporary lifestyles often produce distance and silence within everyday family life. Several participants recalled that in earlier times, family members worked together in pastoral activities, agricultural tasks, household responsibilities, and community gatherings. Elderly individuals remained socially engaged through storytelling, advising younger generations, participating in rituals, and maintaining close interaction with relatives and neighbours. In contrast, many respondents observed that modern work schedules, migration, schooling, and digital communication have significantly reduced opportunities for meaningful interpersonal interaction within households.

One elderly participant explained emotionally:

“Earlier, there was always movement and conversation in the house. People worked together, ate together, and spent evenings together. Now everyone remains busy in separate rooms or outside the home. Sometimes the whole day passes without proper conversation.”

Another respondent described the emotional impact of migration on old age:

“My sons work in different cities, and my grandchildren study outside the village. They call us on the phone, but phone conversations cannot replace human presence. Old age becomes difficult when children are far away.”

An elderly woman shared her feelings regarding reduced participation within the family:

“Earlier, women of my age were consulted in family matters, marriages, and social gatherings. Today, decisions are taken quickly by younger members, and we are informed later. Sometimes we feel invisible inside our own homes.”

Another elderly female participant reflected on the emotional loneliness created by changing lifestyles:

“In the past, neighbours visited each other daily. Women sat together, shared work, sang songs, and discussed family matters. Now people remain inside their homes, and social interaction has decreased. Because of this, old people feel emotionally weak and isolated.”

Several respondents associated emotional distress with the weakening of collective community practices. Traditional forms of storytelling, evening gatherings, folk singing, seasonal migration, and communal celebrations were remembered as important sources of emotional bonding and cultural belonging. Their decline was often perceived as contributing to social fragmentation and emotional emptiness among elders.

One participant nostalgically remarked:

“When we travelled together with livestock during migration, there was hardship but also happiness. People helped each other and shared every problem collectively. Today, material comforts have increased, but emotional closeness has reduced.”

At the same time, emotional experiences of ageing were not uniform across all households. Participants living within supportive joint families or strong kinship networks often reported feelings of emotional security, care, and social respect. Economic stability, regular interaction with children and grandchildren, and continued participation in community activities positively shaped the emotional well-being of many elders.

One respondent expressed satisfaction with his family support system:

"I do not feel lonely because my children and grandchildren spend time with me every evening. They ask about old traditions and listen to my experiences. This keeps me emotionally strong."

Another participant stated:

"Old age becomes easier when family members show affection and include elders in conversations and decisions. Respect and emotional care matter more than money."

These narratives suggest that ageing within the Gujar community is shaped not only by biological factors but also by changing social relations, emotional bonds, migration patterns, and cultural transformations. While some elderly individuals experience loneliness, neglect, and declining social participation, others continue to derive emotional strength from family support, kinship ties, and community belonging. The findings, therefore, reveal the diverse and complex emotional realities of ageing within a rapidly transforming socio-cultural environment.

Negotiating Tradition and Modernity

Although many elderly members of the Gujar Community expressed concern about cultural erosion and the weakening of traditional values, they did not entirely reject modernisation or social change. Most participants demonstrated a balanced and reflective understanding of contemporary transformation, recognising that modernisation has brought significant improvements in education, healthcare, transportation, communication, housing, and economic opportunities for younger generations. Rather than viewing modernity solely as a threat, many elders perceived it as both an opportunity and a cultural challenge. Participants frequently acknowledged that earlier generations faced severe hardships associated with pastoral migration, lack of schools, poor healthcare facilities, limited transportation, and economic insecurity. In comparison, contemporary developments were often seen as contributing to greater social mobility and improved living standards within the community. Elderly respondents expressed

particular pride in the educational achievements of their children and grandchildren, especially those employed in government services, professional occupations, and higher education institutions.

One elderly participant proudly remarked:

“During our time, there were no proper schools, roads, or hospitals in many areas. We struggled a lot during the migration and illness. Today, our children are becoming doctors, teachers, and officers. This change has improved the life of our community.”

Another respondent explained:

“Education has opened new doors for Gujjar youth. Earlier, people looked down upon our community because most of us were uneducated and dependent on livestock. Now our children are competing with others and earning respect in society.”

Several participants emphasised that modernisation itself was not the problem; rather, they were concerned about the weakening of cultural identity and social relationships. Many elders believed that progress and tradition should coexist rather than oppose one another. They repeatedly stressed the importance of preserving language, customs, kinship values, and respect for elders alongside educational and economic advancement.

One elderly woman stated:

“We are not against education or modern life. We want our children to progress and live better lives. However, together with modern education, they should also remember their traditions, language, and culture.”

Another participant reflected thoughtfully on balancing change and continuity:

“Every generation changes with time, and change is necessary. However, if people forget their roots completely, then future generations will not know who they are. Modernity should not erase identity.”

Some respondents described how they had adapted to changing social realities while maintaining aspects of traditional culture. Elders spoke about accepting modern healthcare, formal education, and new communication technologies while still valuing collective traditions, oral memory, and customary practices. This demonstrated that elderly individuals were not passive observers of change but active negotiators of cultural transition.

One respondent shared his adaptive perspective:

"Today I use a mobile phone to talk with my children living outside, and I appreciate these facilities. At the same time, I still teach my grandchildren about our migration routes, traditions, and Gojri language. Both things can exist together."

Another elderly participant observed:

"Life has become easier in many ways because of roads, transport, and hospitals. Earlier, even small illnesses became dangerous during migration. We accept these improvements, but emotionally we still miss the unity and simplicity of old community life."

Participants also highlighted that younger generations are increasingly attempting to reconnect with aspects of Gujar identity through education, cultural programs, tribal organisations, and language preservation efforts. Some elders expressed hope that, despite rapid modernisation, cultural traditions would continue in modified forms.

One participant optimistically remarked:

"Our culture may change in form, but it will not disappear completely. Young people are becoming educated, and some of them are again taking an interest in our language, traditions and history."

These narratives suggest that the relationship between tradition and modernity within the Gujar community is not purely oppositional. Instead, elderly participants continuously negotiate between preserving cultural identity and embracing socio-economic progress. Their experiences reveal the adaptive and dynamic nature of indigenous

communities in transition, where continuity and change coexist in complex, evolving ways.

Resilience and Adaptive Strategies

Despite experiencing rapid social and cultural transformation, elderly members of the Gujar Community demonstrated considerable resilience and adaptive capacity in responding to changing realities. Rather than completely withdrawing from contemporary social life, many elderly participants actively engaged in cultural, religious, and familial practices that helped them maintain a sense of identity, dignity, and continuity within the community. Their narratives reflected not only concern about cultural change but also a determination to preserve meaningful aspects of Gujar traditions while adapting to new social conditions. Many respondents continued to participate regularly in religious gatherings, community meetings, traditional ceremonies, and storytelling practices. These activities were viewed as important spaces for social interaction, emotional support, and cultural transmission. Elders often described storytelling as a significant means of preserving oral memory, migration histories, pastoral knowledge, and moral values for younger generations. Such practices allowed elderly individuals to maintain social relevance and strengthen intergenerational bonds despite changing lifestyles.

One elderly participant explained:

“Even today, I gather my grandchildren in the evening and tell them stories about our migration routes, forests, and old customs. If elders stop sharing these memories, then future generations will forget where they came from.”

Another respondent stated:

“We may not live the same life as before, but we still celebrate our traditions, attend religious gatherings, and teach children respect and moral values. Culture survives when people continue practising it in daily life.”

Several participants emphasised that they actively encouraged younger generations to pursue modern education and employment

opportunities while simultaneously preserving Gujar identity, language, and traditions. Many elders did not see education and cultural continuity as contradictory but believed both could coexist harmoniously.

One elderly woman proudly remarked:

"I always tell my grandchildren to study well and move forward in life, but I also remind them never to feel ashamed of speaking Gojri or following our customs. Education should strengthen identity, not erase it."

Another participant reflected:

"Our children must compete in the modern world, but they should also remember the struggles and traditions of their ancestors. We want progress together with cultural values."

One participant shared his experience with adaptation:

"Earlier, I did not know how to use a mobile phone, but now I speak with my sons and grandchildren every day through video calls. Even though they live far away, technology helps us remain connected emotionally."

Another elderly respondent explained:

"Times have changed, and we also try to change with them. We cannot stop modernisation, so we learn to adjust ourselves while keeping our traditions alive."

Some elders highlighted the importance of community solidarity and religious faith as sources of emotional strength during old age. Participation in local gatherings, mutual assistance among neighbours, and involvement in cultural events helped many participants cope with loneliness and changing family structures.

One respondent remarked:

"When old people meet together in community gatherings, we share memories, discuss problems and feel emotionally supported. These interactions give strength to continue life positively."

Another participant stated optimistically:

“Life always changes from one generation to another. Our responsibility as elders is not only to complain about change but also to guide younger people and keep our culture alive in new ways.”

These narratives demonstrate that elderly Gujjars are not passive recipients of modernisation or helpless victims of cultural transformation. Instead, they actively negotiate change through adaptation, memory preservation, emotional resilience, cultural participation, and intergenerational engagement. Their experiences reveal the dynamic ways in which indigenous elders respond to modernity while striving to maintain continuity, dignity, and cultural belonging within rapidly changing social environments.

Discussion

The findings indicate that cultural transformation has significantly influenced the lives of elderly Gujjars by reshaping family relations, cultural practices, language use and traditional knowledge systems. While modernisation has improved access to education, healthcare and economic opportunities, it has also contributed to the weakening of collective lifestyles, intergenerational interactions and indigenous traditions. Elderly participants expressed concerns about the declining use of the Gojri language, the reduced authority of elders, the erosion of traditional knowledge, and increasing emotional isolation, highlighting the importance of their perspectives for understanding social change. The study also highlights the resilience of elderly Gujjars, who actively negotiate between tradition and modernity by preserving cultural values while adapting to changing social realities. The findings demonstrate that ageing within the Gujjar community is a socially and culturally embedded experience shaped by both continuity and change.

Conclusion

The cultural transformation of the Gujjar community in Jammu reflects a complex sociological process shaped by modernisation, education, migration, state intervention, and shifting aspirations. For elderly Gujjars, these changes present both opportunities and

challenges, emphasising their unique perspectives. While improved education, healthcare, and communication have enhanced material conditions, traditional support systems, indigenous knowledge, and intergenerational cohesion have weakened significantly. The study demonstrates that elderly Gujjars experience modernisation as a negotiated reality involving memory, identity, adaptation, and emotional change. Their narratives reveal concerns about declining respect for elders, the weakening of cultural practices, and the erosion of indigenous knowledge systems. At the same time, elders show resilience by adapting to changing conditions and actively preserving cultural memory and community values. This research contributes to sociological discussions on ageing, indigeneity, and cultural transformation by foregrounding the voices of elderly tribal people. It underscores the need for culturally sensitive policies that recognise elderly indigenous people as custodians of cultural heritage and social knowledge, not just vulnerable populations. Future research should explore gendered experiences of ageing, digital transformation among tribal communities, and comparative studies of indigenous elderly populations across different regions of India.

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Physical Activity and Fitness in Older Adults: A Narrative Review of Benefits, Measurement, and Clinical Application

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ABSTRACT

The global population of older adults is expanding rapidly, creating an urgent need for evidence-based strategies to promote healthy ageing. Physical activity (PA) represents a cornerstone of such strategies, yet its implementation and measurement face unique challenges. This narrative literature review of 18 published studies was conducted using PubMed, Google Scholar, and Web of Science databases (2000-2025). Key search terms included “physical activity,” “older adults,” “ageing,” “measurement,” and “falls prevention.” Regular Physical Activity (PA) is associated with reduced risk of cardiovascular disease (30-35% reduction), type 2 diabetes, falls (23% reduction with balance training), and cognitive decline. Resistance training, particularly eccentric training, improves muscle strength and functional performance. Measurement of PA in older adults remains challenging,

with existing tools requiring validation in Indian populations. Physical activity is a foundational component of healthy ageing. Clinicians should prescribe tailored, multi-component exercise programmes (aerobic, resistance, and balance) and utilise culturally appropriate measurement tools.

Keywords : Ageing, Exercise, Healthy ageing, Sarcopenia, Falls prevention, Resistance training, Narrative review, Indian elderly population

The demographic landscape is shifting irrevocably towards an older population, with profound implications for healthcare systems, economies, and societies worldwide. In India, this trend is particularly striking, with the elderly population having crossed 100 million in 2011 (Shaheen *et al.*, 2016). Ageing is intrinsically associated with a progressive decline in physiological function across multiple organ systems, leading to an increased prevalence of chronic conditions such as cardiovascular disease, type 2 diabetes, osteoporosis, cognitive impairment, and sarcopenia (Ayenigbara, 2020; Pengpid & Peltzer, 2021).

Physical activity (PA), defined by the World Health Organisation as “any bodily movement produced by skeletal muscles that requires energy expenditure,” is a proven, low-cost intervention to mitigate the effects of ageing (WHO, 2020). For the general older adult, PA is fundamental to maintaining functional independence, quality of life, and overall well-being.

International guidelines from organisations such as the World Health Organisation (WHO) and the American College of Sports Medicine (ACSM) have established regular physical activity as a cornerstone of healthy ageing (WHO, 2020). However, the specific types, optimal intensities, and measurement of exercise programs for older adults, particularly in low-resource settings such as India, warrant clearer elucidation in clinical practice.

Concurrently, a growing and distinct cohort of “ageing athletes” (master athletes aged 50 years or older) seeks to maintain high levels of performance and competition, presenting a different set of physiological challenges and training considerations (Tanaka & Seals, 2008; Lepers & Stapley, 2016). Physical activity, particularly balance training, has been shown to reduce fall risk in older adults (Sherrington *et al.*, 2019). A randomised controlled trial by Sun and colleagues demonstrated that both Tai Chi and brisk walking improve balance in elderly women (Sun *et al.*, 2018).

Regular PA reduces all-cause mortality by 30-35 per cent and cardiovascular disease risk by 20-35 per cent (Warburton *et al.*, 2006). Recent evidence suggests that eccentric resistance training may be superior to traditional resistance training for improving muscle strength and functional performance in older adults (Chaabene *et al.*, 2025). Ageing athletes require specialised injury prevention strategies, including joint-by-joint training approaches to address cumulative load (Dhahbi *et al.*, 2025).

Machine learning algorithms and artificial intelligence are emerging as valuable tools for classifying activity types with more than 85 per cent accuracy in validation studies, offering new possibilities for PA measurement in older populations (Souaifi *et al.*, 2025).

Future research should focus on standardising the assessment of sensor technologies and artificial intelligence in physical activity monitoring for older adults to enhance measurement accuracy and clinical applicability (Dhahbi & Chamari, 2026).

Emerging evidence from recent systematic reviews further supports the role of physical activity in healthy ageing. Cadore and colleagues conducted a systematic review demonstrating that multicomponent exercise programs, including balance, resistance, and aerobic training, are effective in improving gait performance and reducing fall risk in frail older adults (Cadore *et al.*, 2013). The American Diabetes Association position statement emphasises that regular physical activity improves glycemic control and reduces

cardiovascular risk factors in older adults with type 2 diabetes (Colberg *et al.*, 2016). The Lancet Commission report on dementia prevention, intervention, and care identified physical inactivity as a modifiable risk factor. It is estimated that addressing lifestyle factors, including physical activity, could prevent up to 40% of dementia cases (Livingston *et al.*, 2020). The International Conference on Frailty and Sarcopenia Research (ICFSR) expert consensus guidelines recommend that exercise programs for older adults be individualised and progressive, incorporating multiple components, including aerobic, resistance, balance, and flexibility training (Izquierdo *et al.*, 2021). A systematic review of reviews by Cunningham and colleagues confirmed that physically active older adults have lower levels of inflammatory markers, including C-reactive protein and interleukin-6, compared to their sedentary counterparts (Cunningham *et al.*, 2020).

This review, therefore, aims to synthesise contemporary evidence on the efficacy of structured exercise interventions in older adults, translate these findings into practical clinical insights, and provide a coherent management framework for healthcare providers working with this population.

This review, therefore, aims to use the PICO Framework:

Component	Description
Population (P)	Older adults (aged ≥ 50 years), including community-dwelling elderly and ageing athletes
Intervention (I)	Structured physical activity programs (aerobic, resistance, balance, or combined)
Comparison (C)	Sedentary lifestyle, usual care, or alternative exercise modalities
Outcomes (O)	Health outcomes: chronic disease incidence, falls, muscle strength, cognitive function, quality of life; Measurement outcomes: validity, reliability, feasibility of PA assessment tools

Existing Gaps in Literature:

Gap	Description
Gap 1	Optimal exercise prescription for older adults in low-resource settings requires clearer elucidation.
Gap 2	Measurement tools for PA have not been validated in Indian populations.
Gap 3	Evidence synthesis for ageing athletes is lacking.
Gap 4	Practical, implementable frameworks for clinicians are limited.

To synthesise contemporary evidence on the efficacy of structured exercise interventions in older adults, translate these findings into practical clinical insights, and provide a coherent management framework for healthcare providers working with this population.

Method

Study Design

This article is a narrative review of the literature on physical activity in older adults. A narrative review was chosen because the topic spans multiple disciplines and the objective is to provide a broad, contextualised overview rather than a focused meta-analysis.

Search Strategy

A literature search was conducted in December 2024 using PubMed, Google Scholar, Web of Science, and Scopus databases. Search terms (combined using AND/OR) included: (“physical activity” OR “exercise” OR “resistance training”) AND (“older adults” OR “elderly” OR “aging”) AND (“health benefits” OR “falls” OR “cognition”) AND (“measurement” OR “accelerometry”) AND (“India” OR “South Asia”).

Inclusion and Exclusion Criteria

The inclusion criteria for this narrative review comprised studies examining physical activity benefits in adults aged 50 years or older, as well as original research, including randomised controlled trials,

prospective cohorts, cross-sectional studies, and high-quality systematic reviews. Only studies published in English between 2000 and 2025 were considered. Additionally, studies addressing physical activity measurement methodologies and those with relevance to Indian or similar low- and middle-income country populations were included.

The exclusion criteria included studies focused exclusively on pharmacological interventions without a physical activity component, case reports, conference abstracts, opinion pieces, and studies in populations with acute medical conditions that limit generalizability. Studies lacking clear outcome measures and non-English publications were also excluded.

Study Selection

From approximately 450 records, studies were prioritised based on: (1) methodological quality (RCTs > cohorts > cross-sectional), (2) relevance to the Indian context, (3) recency (post-2015 preferred), and (4) citation impact. A total of 32 studies were selected for detailed review.

Limitations of This Review

As a narrative review, this work has no formal risk-of-bias assessment or meta-analysis. Conclusions regarding causality require cautious interpretation, particularly for observational evidence.

Pathophysiological Rationale for Exercise in Older Adults

The therapeutic benefits of exercise in ageing are grounded in its ability to modulate key pathological pathways associated with age-related decline (see Figure 1: Proposed Mechanism of Action of Exercise in Older Adults):

- 1. Mitigation of Sarcopenia and Muscle Loss :** Exercise, particularly resistance training, stimulates muscle protein synthesis, enhances neuromuscular function, and increases muscle mass and strength, directly countering age-related muscle loss. [Ayenigbara, 2020]

2. **Improvement in Insulin Sensitivity and Metabolic Health:** Regular physical activity enhances skeletal muscle glucose uptake, reduces visceral adiposity, and improves insulin receptor sensitivity, thereby lowering the risk of type 2 diabetes and metabolic syndrome. [Pengpid & Peltzer, 2021, Warburton *et al.*, 2006]
3. **Cardiovascular and Vascular Adaptations:** Aerobic exercise improves cardiac output, reduces resting heart rate and blood pressure, enhances endothelial function, and improves lipid profiles, collectively reducing cardiovascular disease risk. [Warburton *et al.*, 2006]
4. **Neuroprotective and Cognitive Benefits:** Exercise increases brain-derived neurotrophic factor (BDNF), promotes neuroplasticity, improves cerebral blood flow, and reduces neuroinflammation, thereby preserving cognitive function and reducing dementia risk. [Pengpid & Peltzer, 2021]
5. **Bone Health and Fall Prevention:** Weight-bearing and resistance exercises stimulate bone formation, increase bone mineral density, and improve balance and proprioception, significantly reducing the risk of falls and osteoporotic fractures. [Sherrington *et al.*, 2019, Sun *et al.*, 2018]

Figure 1 : Proposed Mechanism of Action of Exercise in Older Adults

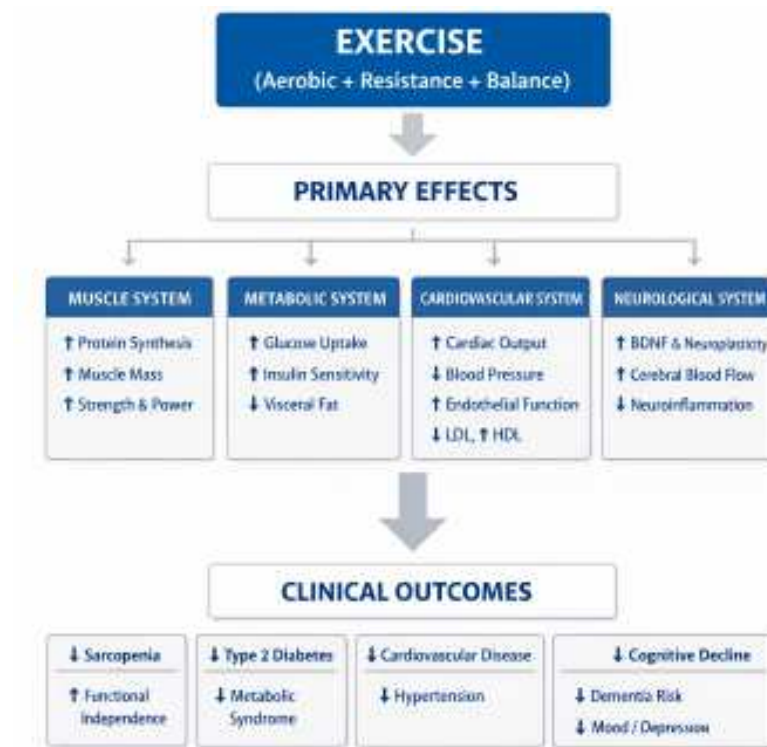


Figure 1 Legend: This flowchart illustrates the multi-system effects of exercise in older adults. Exercise (aerobic, resistance, and balance training) produces primary physiological effects across four systems: **MUSCLE SYSTEM** (increased protein synthesis, muscle mass, strength, and power); **METABOLIC SYSTEM** (increased glucose uptake and insulin sensitivity, decreased visceral fat); **CARDIOVASCULAR SYSTEM** (increased cardiac output and endothelial function, decreased blood pressure and LDL, increased HDL); and **NEUROLOGICAL SYSTEM** (increased BDNF and neuroplasticity, increased cerebral blood flow, decreased neuroinflammation). These primary effects translate into clinical outcomes, including decreased sarcopenia, falls, diabetes risk,

cardiovascular disease risk, hypertension, cognitive decline, and dementia risk, as well as increased mood and functional independence.

Evidence Synthesis: Impact of Exercise on Health Outcomes in Older Adults

A synthesis of evidence from clinical studies and large population-based research provides robust support for the role of exercise interventions in the health of older adults. The key findings are summarised in **Table 1**.

Comparative Analysis of Exercise Protocols Across Studies and Guidelines

Significant variability exists in exercise recommendations across clinical studies and international guidelines. **Table 2** provides a comprehensive comparison of exercise protocols from key studies and major guideline bodies.

Table 1
Summary of Key Studies on Exercise Interventions in Older Adults

Author (Year)	Study Design	Population (n)	Intervention	Duration	Key Health Outcomes
Pengpid & Peltzer (2021)[3]	Population-based cross-sectional	n=72,262; adults >45 years in India	Self-reported PA levels (inactive, low, moderate, high)	N/A	Higher PA associated with ↓ diabetes, heart disease, stroke, hypertension, chronic lung disease, depression, cognitive impairment, and Alzheimer's disease/dementia
Sherrington et al. (2019)[7]	Systematic Review & Meta-analysis	Community-dwelling older adults (multiple studies)	Balance and functional exercise programs	Variable	Exercise reduces the rate of falls by 23%; programs that include balance training are most effective.
Chaabene et al.(2025)[10]	Systematic Review with Multilevel Meta-analysis	Older adults (multiple RCTs)	Eccentric vs. traditional resistance training	Variable	Eccentric training is superior for improving muscle strength, power, and functional performance.
Sun et al. (2018)[8]	Randomized Controlled Trial	n = 60; elderly women aged 60-70 years	Tai Chi Chuan vs. Brisk walking (1216 weeks)	12-16 weeks	Both interventions improved balance; Tai Chi showed greater improvement in eyes-closed balance.
Warburton et al. (2006)[9]	Review	General adult and older adult populations	Various aerobic and resistance training programs	Variable	Regular PA reduces all-cause mortality, CVD, type 2 diabetes, and improves mental health.
Shaheen et al. (2016). [1]	Narrative Review	Indian elderly population	Review of measurement tools (IPAQ, PASE, accelerometry)	N/A	Identified a lack of validated PA measurement Tools for the Indian elderly highlighted the need for culturally adapted instruments.

Note: Evidence hierarchy varies by study design (RCTs provide the strongest causal evidence; cross-sectional studies provide associational evidence only)

Table 2
Comparison of Exercise Protocols in Older Adult Health Management

Protocol Source	Exercise Type (Specific Activities)	Frequency	Duration per Session	Intensity	Key Objectives
WHO Guidelines (2020)[4]	Aerobic (walking, cycling, swimming) + Muscle strengthening (resistance bands, body-weight) + Balance training	≥150 moderate OR ≥75 min/week min/week vigorous + ≥2 days strength + ≥3 days balance	Variable	Moderate to vigorous	Overall health, chronic disease prevention, and fall prevention
ACSM Guidelines (2019)[7]	Aerobic + Resistance + Flexibility + Neuromotor (balance)	≥150 min/week moderate OR 60 min/week vigorous + 2-3 days strength + 2-3 days flexibility + 2-3 days balance	30-60 min aerobic; 8-10 exercises strengthen	Moderate (5-6/10 RPE) to vigorous	Maintain functional independence, prevent sarcopenia, improve quality of life
Chaabene (2025)[10]	Eccentric resistance training (slow negatives, downhill walking) vs. Traditional resistance	2-3 days/week	45-60 minutes	Moderate to high intensity	Maximise muscle strength, power, and functional performance
Sherrington (2019)[7]	Balance-challenging exercises (standing on one leg, heel-toe walking, Tai Chi) + Functional exercises	≥3 days/week	30-45 minutes	Moderate (challenging but safe)	Fall prevention, improved gait stability
Pengpid (2021)[3]	Mixed aerobic (vigorous: running, farm work; moderate: housework, walking)	Variable; high PA = >300 min/week moderate equivalent	Variable	Moderate to vigorous	Reduce chronic disease burden, improve mental health and well-being

Result

Emerging evidence suggests that physical activity also confers benefits for immune function and reduces systemic inflammation in older adults. A systematic review by Cunningham et al. found that physically active older adults had lower levels of inflammatory markers, including C-reactive protein and interleukin-6, compared to their sedentary counterparts (Cunningham et al., 2020). These anti-inflammatory effects may partially explain the broad health benefits of PA across multiple organ systems.

Additionally, international consensus guidelines from the International Conference on Frailty and Sarcopenia Research (ICFSR) recommend that exercise programs for older adults be individualised and progressive, incorporating multiple components, including aerobic, resistance, balance, and flexibility training (Izquierdo et al., 2021). The guidelines emphasise that even frail and pre-frail older adults can safely engage in exercise with appropriate supervision and modification.

Synthesised Clinical Findings:

- 1. Mortality and Chronic Disease Prevention:** Regular physical activity is consistently associated with reduced all-cause mortality and lower incidence of cardiovascular disease, type 2 diabetes, and multiple cancers. A dose-response relationship exists, with higher activity levels conferring greater protection. [Pengpid & Peltzer, 2021, Warburton *et al.*, 2006]
- 2. Fall Prevention:** Balance-challenging exercises performed at least three times per week significantly reduce fall rates in community-dwelling older adults. Programs combining balance and functional exercises are most effective. [Sherrington *et al.*, 2019]
- 3. Muscle Strength and Physical Function:** Resistance training, particularly eccentric training, is superior for improving muscle strength, power, and functional performance in older adults, enabling continued

independence in activities of daily living. [Ayenigbara, 2020; Chaabene *et al.*, 2025]

4. **Cognitive and Mental Health:** Physical activity is associated with reduced risk of cognitive decline, dementia, depression, and anxiety, alongside improvements in sleep quality and overall well-being. [Pengpid & Peltzer, 2021]

Integrating Exercise into Comprehensive Geriatric Care

Exercise is not a standalone therapy but a core component of a multidisciplinary strategy for healthy ageing. Table 3 presents an integrated management framework.

Table 3
Integrated Management Framework for Older Adults.

Component	Goal	Specific Action
Lifestyle Foundation	Address root causes of age-related decline (sedentary behaviour, poor nutrition)	Structured Exercise Program (aerobic + resistance + balance) + Nutritional optimization (adequate protein, vitamin D, calcium) + Referral to physiotherapist/exercise specialist
Medical Management	Manage chronic conditions, optimise medications.	Regular health screenings (BP, lipids, glucose); Manage hypertension, diabetes, osteoporosis; Review medications that increase fall risk (e.g., sedatives)
Fall Prevention Strategy	Reduce fall risk, maintain mobility	Home safety assessment (remove tripping hazards, improve lighting); Vision check; Balance training program; Appropriate footwear
Psychological Support	Improve adherence, address depression/anxiety, enhance QoL	Screen for depression and anxiety; Provide social connection opportunities (group exercise); Consider counseling if needed
Monitoring & Follow-up	Track progress, adjust therapy.	Regular functional assessments (gait speed, chair stand test, grip strength); Fall diary; Reassessment every 6-12 months

Special Considerations:

- **Frailty and Pre-Frailty:** For frail older adults, start with low-intensity exercises focusing on balance and strength before progressing to aerobic conditioning. Supervised programs are preferable. [Ayenigbara, 2020]
- **Cognitive Impairment:** Exercise programs for individuals with dementia should be person-centred, delivered by trained professionals, and may combine physical and cognitive training for optimal benefit. [Pengpid & Peltzer, 2021]
- **Indian Context:** Measurement of physical activity in Indian older adults requires culturally adapted tools, as existing questionnaires (IPAQ, PASE) may not fully capture activities common in Indian households (e.g., squatting, manual washing, farming). [Shaheen *et al.*, 2016] Low-cost accelerometry and smartphone-based tracking may offer scalable solutions.
- **Ageing Athletes:** Require specialised programming with periodized training, longer recovery, emphasis on eccentric strength, and joint-by-joint injury prevention strategies. [Lepers & Stapley, 2016; Tanaka & Seals, 2008; Chaabene *et al.*, 2025; Dhahbi *et al.*, 2025]
- **Non-Responders:** If no improvement in functional measures or metabolic parameters is observed after six months, reassess program adherence, consider supervised sessions, and evaluate for undiagnosed medical conditions.

Discussion**Summary of Key Findings**

This narrative review synthesises evidence that regular physical activity is consistently associated with multiple health benefits in older adults, including reduced cardiometabolic disease risk, improved physical function, better mental health outcomes, and decreased fall risk. The evidence is strongest for fall prevention and functional

improvements, with multiple randomised controlled trials supporting causality (7,10). For chronic disease prevention, evidence largely derives from observational studies, warranting cautious interpretation of causality.

Clinical Implications

Healthcare providers should prescribe multi-component exercise programs for older adults, including at least 150 minutes per week of moderate-intensity aerobic activity or 75 minutes per week of vigorous-intensity aerobic activity. Resistance training should be performed two to three sessions per week, targeting major muscle groups with eight to ten exercises, each set comprising one to three sets of eight to twelve repetitions. Balance training is recommended at least three sessions per week using challenging but safe exercises, while flexibility exercises should be performed at least two sessions per week.

Tailored approaches are essential for different populations. Frail elderly individuals require lower-intensity exercise, starting with balance and strength training before progressing to aerobic conditioning. Ageing athletes need periodized programming with longer recovery phases, an emphasis on eccentric strength training, and joint-by-joint injury-prevention strategies. For measuring physical activity, clinicians should use the Physical Activity Scale for the Elderly (PASE) for initial screening in clinical settings and reserve accelerometry for research purposes. In the Indian context, providers should incorporate culturally relevant activities such as household chores, farming, and squatting into physical activity assessment and prescription, address barriers, including a lack of safe walking spaces and extreme temperatures, and leverage community-based programs, such as yoga and group walking, for social support.

Strengths and Limitations of This Review

Strengths:

- Comprehensive scope covering health benefits, measurement, ageing athletes, and the Indian context

- Practical focus: translating evidence into clinical recommendations
- Contextual relevance highlighting India-specific challenges
- Current evidence, including recent (2025-2026) publications

Limitations:

- Narrative design lacks systematic search and formal quality appraisal
- No meta-analysis; cannot provide pooled effect estimates
- Observational predominance limits causal inference
- India-specific data gaps constrain context-specific conclusions
- Ageing athlete section brief due to space constraints

Recommendations for Future Research

Priority	Recommendation
1	Validate PA questionnaires (PASE, IPAQ) for older Indian populations using accelerometry as the criterion standard.
2	Establish older-adult-specific accelerometer cut points for Indian populations.
3	Establish prospective cohorts in India examining PA and chronic disease incidence.
4	Develop culturally relevant, scalable community-based PA programs.
5	Investigate optimal training protocols for ageing athletes
6	Evaluate smartphone-based interventions for PA adherence in older adults.
7	Elucidate mechanisms linking PA to cognitive preservation
8	Assess the cost-effectiveness of PA interventions in Indian settings.

Key Clinical Messages

Healthcare providers should prescribe multi-component exercise programs for older adults, including at least 150 minutes per week of moderate-intensity aerobic activity or 75 minutes per week of vigorous-intensity aerobic activity. Resistance training should be performed two to three sessions per week, targeting major muscle groups with eight to ten exercises, each set comprising one to three sets of eight to twelve repetitions. Balance training is recommended at least three sessions per week using challenging but safe exercises, while flexibility exercises should be performed at least two sessions per week.

Tailored approaches are essential for different populations. Frail elderly individuals require lower-intensity exercise, starting with balance and strength training before progressing to aerobic conditioning. Ageing athletes need periodized programming with longer recovery phases, an emphasis on eccentric strength training, and joint-by-joint injury-prevention strategies. For measuring physical activity, clinicians should use the Physical Activity Scale for the Elderly (PASE) for initial screening in clinical settings and reserve accelerometry for research purposes. In the Indian context, providers should incorporate culturally relevant activities such as household chores, farming, and squatting into physical activity assessment and prescription, address barriers, including a lack of safe walking spaces and extreme temperatures, and leverage community-based programs, such as yoga and group walking, for social support.

Conclusion

Structured exercise represents an evidence-based therapeutic intervention for promoting healthy ageing and maintaining functional independence in older adults. By directly targeting the fundamental pathophysiological processes of ageing—sarcopenia, insulin resistance, cardiovascular decline, and neurodegenerative changes—exercise promotes physical, cognitive, and emotional well-being. The evidence

synthesised in this review confirms that regular physical activity is consistently associated with reduced all-cause mortality, lower incidence of chronic diseases, improved functional capacity, enhanced mental health outcomes, and decreased fall risk in older adult populations.

Moving beyond generic lifestyle advice, clinicians should adopt a collaborative, multidisciplinary approach to prescribe and monitor tailored exercise regimens as part of standard geriatric care. Integrating this non-pharmacological cornerstone not only improves health outcomes but also enhances quality of life and fosters independence in the ageing adult population. Future efforts should focus on developing culturally appropriate measurement tools and implementing scalable, community-based exercise programs, particularly in diverse settings like India. The key message for clinicians, public health experts, and older individuals is unequivocal: regular physical activity is indispensable, and any amount is superior to none.

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Physiotherapy Rehabilitation in Severe Parkinson's Disease : A Case Report

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ABSTRACT

This paper reports a case of a 73-year-old male diagnosed with stage V Parkinson's disease according to the Hoehn and Yahr scale. He has had a history of hypertension for 12 years and diabetes mellitus. The patient exhibited a mask-like face and pill-rolling tremors. He required moderate assistance to sit and maximum assistance to stand, and he was unable to walk. His Berg Balance Score was 3 for sitting and standing, indicating a high fall risk. Following six weeks of conventional physiotherapy combined with RAS, the patient showed significant improvements in treatment outcomes.

Keywords : Parkinson's Disease, Rhythmic Auditory Stimulation, Balance, Range of Motion.

Parkinson's disease (PD), first identified by Dr James Parkinson, is a slowly progressive degeneration of nervous tissue that presents with a variety of motor and non-motor features (Bhoge *et al.*, 2023). The underlying cause is a reduction in dopamine (a neurotransmitter) release due to the loss of

dopaminergic neurons in the substantia nigra (Ibid.). Parkinson's disease is primarily characterised by four features: bradykinesia (slowness of movement), tremors (pill-rolling type), cogwheel rigidity, and impaired postural stability (Ibid.). The initial clinical manifestations appear when approximately 60 per cent of dopamine-producing neurons in the substantia nigra have degenerated (Winser & Kannan, 2011). The average age of onset of Parkinson's disease is in the mid-fifties, with both incidence and prevalence increasing with advancing age (Ibid.). The disorder is characterised by impaired resting muscle tone and voluntary movement due to the loss of striatal dopamine within the nigrostriatal pathway (Ibid.).

Physical therapists educate individuals with Parkinson's disease in strategies to manage impairments and disabilities, to facilitate easier movement, reduce disability, and maintain independent living skills (Ibid.). Postural instability is recognised as a major contributor to frequent falls in this population. Balance exercises are commonly implemented to prevent falls, and research by Mark A. *et al.* (1998) demonstrated that high-intensity resistance training combined with balance training can be safely and effectively used to improve balance and strength in individuals with PD (Winser & Kannan, 2011).

Physiotherapy intervention in Parkinson's disease aims to improve upper- and lower-extremity function, transfers, postural control, and balance through structured programs that incorporate strengthening and stretching exercises, bed mobility training, gait training with cueing strategies, and transfer techniques (Bhoge *et al.*, 2023).

This paper reports a case of a 73-year-old male patient diagnosed with stage V Parkinson's disease according to the Hoehn and Yahr scale.

Case Presentation

A 73-year-old male diagnosed with Parkinsonism for 10 years came to the Neuro Outpatient Department (OPD) complaining of uncoordinated movements, restlessness, and weakness in the whole body. He is also a known case of hypertension 12 years back, and diabetes mellitus.

Clinical Findings

On observation, the patient had a mesomorph body type. He was lying supine, and his vitals were stable. The patient had a mask-like face and pill-rolling tremors. He needed moderate assistance to sit, but maximum assistance to stand. He is unable to walk. Berg's balance score was 3 for sitting and standing balance across all components, i.e., high risk of falls.

Tables 1 and 2 show findings of muscle tone (Tone Grading System) of the upper extremities and reflexes of the patient.

Table-1
Muscle tone of upper extremities

Muscles		Right	Left
Shoulder	Flexors	2+	2+
	Extensors	2+	2+
	Abductors	2+	2+
	Adductors	2+	2+
Elbow	Flexors	2+	2+
	Extensors	2+	2+
Wrist	Flexors	2+	2+
	Extensors	2+	2+
	Ulnar deviators	2+	2+
	Radial deviators	2+	2+
Fingers	Flexors	1+	1+
	Extensors	1+	1+

1+: Decreased tone, 2+: Normal tone, 3+: Increased tone

Table-2
Reflexes

Reflexes	Right	Left
Biceps	++	++
Triceps	++	++
Knee	+	+
Ankle	+++	+++
Plantar response	positive	positive

+: Diminished reflex, ++: Normal reflex, +++: Exaggerated reflex

Investigations

The routine CBC (Complete Blood Count) test revealed that the patient was anaemic. The haemoglobin level was found to be 11.3 gm/dl (normal: 13-17gm/dL), total leucocyte count raised to 18,000 cells/ μ L (normal: 4,000 – 10,000), as well as raised serum creatinine to 2.8 mg/dL (normal: 0.4-1.4 mg/dL), was also found in KFT (kidney function test) results.

The routine MRI Brain test revealed Encephalomalacia with gliotic signal changes involving the left high frontal lobe, along watershed territories including the left ACA-MCA and left MCA-PCA border zones, likely sequelae of prior ischemic insult. There is associated mild ex-vacuo dilation of the adjacent left lateral ventricle. Age-related cerebral atrophy with Grade I Fazekas changes—no evidence of acute infarct or intracranial haemorrhage.

Therapeutic Intervention

Table 3 provides a summary and shows the physiotherapy interventions the patient received over a span of six weeks.

Table-3
Physiotherapy Intervention

Goal	Intervention	Dosage
Patient Education	A patient's condition, the value of physiotherapy, and its benefits are all explained to them. Treatment to improve their health condition, avoid complications, and increase their ability to roll, sit, walk, squat, and perform other daily activities with minimal or total independence.	NA
To improve the ROM of the upper and lower limbs.	Active assisted exercises for all joints of the upper and lower limbs.	1 set. Each set consists of 10 repetitions.
To improve the flexibility of muscles.	Static stretching to the finger flexors, wrist flexors, and ulnar deviator muscles of the bilateral upper limb.	Static stretching: 5 repetitions each with 30 sec hold, 1 set.
To improve bed mobility	The transition from supine to side-lying.	Every 1 hour
To enhance the strength of the upper and lower extremity muscles	A half-litre bottle was used as a weight for the shoulder and elbow. Dynamic quads were given for quadriceps strengthening	1 set. Each set consists of 10 repetitions.
To enhance balance	Progression from standing with feet apart and minimal support to independent with feet closed together, tandem standing.	This exercise was progressed over several days, with each position held for at least 1 minute at the start, then progressed further.
To improve gait	Spot marching progressed to hallway walking and training within parallel bars with auditory cueing (RAS)	Twice a day.
To ensure good ventilation.	Deep-breathing and pursed-lip breathing exercises.	10 repetitions, 2 sets of each exercise

NA – Not Applicable, ROM – Range of Motion, RAS - Rhythmic auditory stimulation

Outcome Measures

At the end of his treatment, the assessment was repeated, and the patient reported improved standing balance and gait, with decreased fall risk. The pre- and post-treatment outcomes are presented in Table 4.

Table-4
Pre- and post-treatment outcomes

	Pre-treatment	Post-treatment
Sitting	Moderate support needed	Sits independently
Standing	Maximum support needed	Stands with minimal assistance
Walking	Unable to walk	Walks with moderate assistance
Berg Balance Score	3	17

Discussion

In this case study, a patient with coexisting PD received physical therapy for 6 weeks. One study suggested that physiotherapy improved patients' treatment outcomes compared with placebo or no-treatment groups. It also indicated no significant difference in the effects of different interventions. Similarly, we used interventions such as stretching, balance, and gait training and found a positive impact on patients (Tomlinson CL *et al.*, 2014).

Postural instability is a characteristic symptom of this condition. This led to gait impairment, balance issues, and frequent falls. A recent paper by Youm *et al.* (2020) suggested that using strengthening and stretching exercises of the trunk over three months improved posture balance and decreased falls in this patient.

Motor function improves in PD patients treated with Rhythmic Auditory Stimulation (RAS). A recent paper by Aoyi Li *et al.* (2025) suggested that motor improvement with rhythmic auditory stimulation (RAS) effectively optimises gait parameters in individuals with PD.

Conclusion

With the global rise in PD prevalence, it is increasingly important to conduct more comprehensive, in-depth research into a range of treatment approaches. This study presents a case of a 73-year-old male diagnosed with Parkinsonism for 10 years who came to the Neuro Outpatient Department (OPD) complaining of uncoordinated movements, restlessness, and weakness in the whole body with stage 5 PD, severe balance impairments, gait impairments, and other motor dysfunctions. He was treated for six weeks with conventional physiotherapy, and RAS showed improved treatment outcomes.

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Solo Living Among Older Adults in India: Evidence from LASI Wave-1

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ABSTRACT

Demographic ageing in India is further associated with changes in household structures, leading to a steady rise in the number of older persons aged 60 years and above living alone. In this research, based on the Wave-1 Longitudinal Ageing Study in India (LASI) 2017-18, prevalence, correlates, and health profile of older persons aged 60 years and above living alone in India have been analysed. In this research work, to examine demographic, socioeconomic, and health-related characteristics, logistic regression has been used to identify gender disparities. It has been observed in this research work that 8.5 per cent of older persons in India live alone, having a greater prevalence in the case of older women, widowed, and urban older persons in India. Older persons with fewer children in their families and those with better economic standards at home tend to have greater independence, whereas poor health outcomes hinder it. It can be noted in this research work that older persons in India who have independence in

life have a greater prevalence of chronic health problems like hypertension and arthritis.

Keywords : Older adults, Living alone, Living arrangements, Health outcomes, Socio-economic inequality.

Today, the Indian population is undergoing a rapid demographic transition, marked by a steady increase in the absolute and relative numbers of older people. Life expectancy, fertility decline, and improvements in healthcare contribute significantly to the accelerated ageing process and its impacts on family compositions and living arrangements during old age (Prakash, 1999; Chaudhuri & Roy, 2009). Generally, the aged population in Indian culture has always lived in an extended family setup. This family interliving arrangement ensured the provision of financial and caregiving assistance to the elderly in the absence of any significant social service mechanism (Sharma & Xenos, 1991; Bongaarts & Zimmer, 2002).

However, in recent decades, factors such as urbanisation, labour migration, low fertility rates, and cultural changes have begun to break the norm of co-residence, as household composition has changed (Singh, 2003). This has led to the development of alternative living styles that are increasingly popular, namely, living alone in old age. While living alone in old age in Western societies is closely associated with autonomy and self-sufficiency (Klinenberg, 2012), in India, it is often associated with vulnerability.

Gender differences are of interest in this context because older women are likely to live alone owing to their higher survival probability, higher probability of widowhood, and lower probability of remarriage compared to men (Summerfield & Gill, 2005; Chaudhuri & Roy, 2009). It has also been proposed that older adults may be at risk of health problems and social isolation when they live alone (Young & Grundy, 2009). Although the problem is of great importance, there is little national-level evidence on older people living alone in India. Based on the Longitudinal Ageing Study of India

(LASI) Wave 1 (2017-18 data), this paper analyses the incidence and health profile of older persons who live alone.

Review of Literature

Lone living has also been identified as a significant trend in the evolution of household structures worldwide, with particular emphasis on population ageing. In the developed nations, a large amount of research has been conducted on the rising trend of lone households, caused by demographic shifts such as delayed marriage, divorce, widowhood, and rising life expectancy, as well as the development of a more individualistic society (Ogden & Hall, 2004; Stone et al., 2011; Klinenberg, 2012). In developed nations, living alone among the older generation is often facilitated by well-developed social security arrangements. It is considered a matter of lifestyle preference, whereas in developing nations it is often seen as a necessity.

Nonetheless, in some developing and transitioning societies, such as in the Asia-Pacific, living alone among the elderly is far less common and is influenced by the cultural norm of co-residing with family members (Podhisita & Xenos, 2015; Yeung & Cheung, 2015). It was found that widowhood, lack of offspring, marital dissolution, and out-migration of adult offspring remain the main demographic correlates of living alone in old age (Evandrou *et al.*, 2001; Jamieson and Simpson 2013). There are already observable gender disparities regarding the lone living situation of the elderly, with greater life expectancy and reduced rates of remarriage among women, favouring the likelihood of living alone among elderly females (Summerfield & Gill, 2005).

Socioeconomic factors also condition living arrangements. There is evidence that improved educational attainment, financial support, and wealth could help older people live independently by securing their economic status and giving them more choice about where they live (Vitali, 2010; Klinenberg, 2012). However, where formal social support services are minimal within society, economic disadvantage could put older people living alone at risk (Bongaarts & Zimmer, 2002). Urbanisation and domestic migration also contribute by

scattering families and undermining intergenerational co-residence (Zhao & Chen, 2008; Jamieson & Simpson, 2013).

In the Indian setting, the body of evidence regarding older persons living alone is sparse. However, the evidence currently available suggests that older women, widowed women, and those living in urban areas are likely to live alone, and that regional differences are large (Singh, 2003; Chaudhuri & Roy, 2009). There are indications that specific health hazards, such as self-assessed health, functionality, or social isolation, might be related to living alone (Young & Grundy, 2009). Nevertheless, the Indian evidence primarily consists of small-scale studies, indicating that the need for nationwide investigations focusing on socioeconomic determinants and health outcomes remains unmet.

Research Gap

Despite growing population ageing, nationally representative evidence on the socioeconomic determinants and health implications of older adults living alone in India, particularly gender-differentiated analyses, remains limited and fragmented.

Objectives

- (1) to estimate the prevalence of living alone among older adults in India
- (2) to identify key demographic and socioeconomic predictors of older adults living alone,
- (3) to assess the health status and disease profile of older adults living alone in comparison to those living with others.

Method

The present study has utilised data from the Longitudinal Ageing Study in India (LASI) Wave-1, which was conducted in 2017-18. The longitudinal ageing study in India is a national-level survey aimed at analysing the health, economic, and social contexts of the country's ageing population. The study was conducted using a multistage stratified sampling method and included all states and union territories in the country except Sikkim. Although the longitudinal ageing study

in India interviewed people aged 45 years or older and their spouses, the current study focuses on individuals aged 60 years or older and excludes cases without complete data. A total of 31,464 individuals have been considered in the analysis.

The dependent variable is living alone, operationalised by living alone in a one-person household. A dummy variable was created, with 1 indicating older adults living alone and 0 indicating older adults living with others. The independent variables include demographic variables (age, sex, marital status, number of children, religion, caste, geographic location, and place of residence), socioeconomic variables (level of education, employment, wealth, and landownership), and healthcare variables (self-rated health, Activities of Daily Living, and Instrumental Activities of Daily Living). There are three steps in this analysis. Firstly, descriptive statistics will be conducted to estimate the prevalence of living alone. Secondly, bivariate tests will be run to compare some background variables. Lastly, logistic regression tests will be done to identify what affects lonely loners. These tests will be run separately for both men and women.

Results

Living Arrangement Profile of Older Adults in India

Table 1 presents the distribution of living arrangements among older adults in India by gender. The results indicate that living with spouse and children is the most common living arrangement, accounting for 40.6 per cent of all older adults, followed by living with children only (27.6%) and living with spouse only (20.3 %). In contrast, only 5.7 per cent (N=1,787) of older adults live alone.

A clear gender difference is observed in living arrangements. Older women were considerably more likely to live alone (8.5%) than older men (2.5 %), suggesting greater vulnerability among women in later life, likely associated with widowhood and longer life expectancy. Men were more likely to live with a spouse (26.0%) than women (15.2%), while women were much more likely to live with children (40.7%) than men (13.2%).

Overall, co-residence with family remains the dominant living arrangement among older adults in India, whereas living alone remains relatively uncommon but is substantially more prevalent among women.

Table 1
Living arrangements among the older adults

	Male	Female	Total	Number
Living arrangements				
Living alone	2.5	8.5	5.7	1,787
Living with spouse	26.0	15.2	20.3	6,397
Living with spouse	54.4	28.2	40.6	12,779
Living with children	13.2	40.7	27.6	8,696
Living with others	3.9	7.4	5.7	1,805
Total	14,931	16,533	31,464	31,464

Source: Calculated by the author(s) using LASI Wave 1, 2017-18 data

Level of Living Alone among Older Adults

Map 1 shows interstate disparities in the percentage of older people living alone in India during 2017-18. While the overall percentage of older people remains low, the proportion of people living alone in India is also low, and disparities across states and union territories are quite high. States in the southern and northeastern regions of the country show higher percentages of older people living alone. States such as Nagaland, Tamil Nadu, Telangana, and Andhra Pradesh have a high share of people living alone, which remains significantly higher than the country's overall level. On the other hand, states in the northern part of the country, along with the union territories of Jammu and Kashmir, Punjab, Haryana, Delhi, and Chandigarh, show very low percentages of older people living alone.

Socio- Demographic Profile of Older Adults Living Alone

Table 2 presents the socio-demographic profile of older adults who were living alone in India. Approximately 4.5 per cent of older adults aged 60 to 69 years live alone in India. Though it is a small

percentage, it represents a significant number given the total population of older adults in India. The descriptive statistics reveal that living alone varies widely across demographic, socioeconomic, and geographic characteristics. Living alone is a gendered phenomenon, and women aged 65 years and older, together with those aged 65 years and older, make up nearly three-fourths of those who live alone, primarily because of their expected longer life and a relatively high proportion of widowed women in this age group. The prevalence of those living alone is highest among those aged 70-79. The urban population is more likely to live alone than the rural population, suggesting that the urban environment facilitates or requires such arrangements.

Marital status emerges as an important association, wherein the chances of living alone are substantially higher among the widowed, separated, or unmarried elderly compared to the married. Family circumstances also play an important role, with the odds of living alone decreasing as the number of surviving children increases. Socioeconomic disparities exist: the probability of living alone increases among the richer, landless elderly, especially in the southern states. Disparities related to caste and religion are minimal.

Table 2
Socio-demographic Profile of Older Adults Living Alone in India, 2017-18

Characteristics	Male (%)	Female (%)	Total (%)	Number
Age group				
60-69	2.1	6.6	4.5	18,410
70-79	2.7	12.0	7.5	9,501
80+	4.1	9.5	7.0	3,553
Place of residence				
Urban	2.7	9.7	6.3	22,196
Rural	2.1	5.8	4.1	9,268

Marital status

Currently married	0.2	0.2	0.2	19,391
Widow/separated	12.5	15.1	14.5	12,073

Number of children

One child	6.6	12.3	9.9	2,038
Two children	2.4	9.9	6.2	4,290
More than two children	1.7	7.2	4.6	23,916

Education

No/primary	2.9	9.3	6.9	21,381
Secondary	2.1	5.2	3.1	7,892
Higher	1.9	6.6	2.9	2,191

Work status

Never worked	5.1	5.3	5.2	8,308
Currently working	5.3	12.6	12.3	9,679
Worked in past but currently not	6.3	10.8	6.3	13,469

Religion

Hindu	2.6	8.7	5.8	25,870
Muslim	1.2	6.8	4.0	3,548
Christian	7.1	12.7	10.3	900
Others	1.2	5.7	3.5	1,145

Caste

SC/ST	2.6	8.5	5.7	8,502
OBC	2.8	9.5	6.3	14,227
Others	2.0	7.0	4.6	8,678

MPCE quintile

Poorest	2.1	8.4	5.5	6,829
Poorer	2.2	5.0	3.7	6,831
Middle	2.1	8.93	5.6	6,590
Richer	2.3	10.6	6.7	6,038
Richest	4.3	10.7	7.5	5,175

Land ownership

Yes land	2.0	4.6	3.3	15,801
No land	3.4	12.8	8.6	14,829

Region				
North	1.8	4.6	3.3	3,960
Central	3.7	6.6	5.1	6,593
East	1.4	6.8	4.1	7,439
Northeast	1.7	6.3	4.2	935
West	1.6	7.5	4.9	5,401
South	3.8	15.0	10.0	7,136
India	2.5	8.5	5.7	31,464

Source: Calculated by the author(s) using LASI Wave 1, 2017-18 data

Co-determinants of Living alone: Binary Logistic Results

Binary Statistical regression analysis was performed using the full analytical sample of older adults aged 60 years and above (N=31,464). The dependent variable was living arrangement status, coded as 1 = living alone and 0 = living with others. Separate sex-specific models were estimated for men and women to identify gender differences in the determinants of living alone. Adjusted Odds Ratios (AOR) with 95% confidence intervals are presented, where AOR>1 indicates higher odds of living alone and AOR<1 indicates lower odds compared with the reference category.

The results show that urban residence was positively associated with living alone. Older adults residing in urban areas had 1.81 times higher odds of living alone than those living in rural areas (AOR: 1.81; 95% CI: 1.58–2.07). This association was stronger among women (AOR: 1.98; 95% CI: 1.69–2.31).

Age revealed a mixed association with living alone. Compared with older adults aged 60-69 years, those aged 70-79 had 24 per cent lower odds of living alone (AOR: 0.76; 95% CI: 0.67–0.87). However, no statistically meaningful difference was observed among those aged 80 years and above.

Gender differences were evident. Women had 29% lower adjusted odds relative to men in the pooled model (AOR: 0.71; 95% CI: 0.62–0.83) after controlling for other variables.

Marital status emerged as the strongest correlate. Older adults who were not currently in a union had substantially different odds of

living alone compared with those currently married (AOR: 0.02; 95% CI: 0.01–0.02), indicating marital status as a major determinant of living arrangement.

Family support was also very important. Compared with those having more than two children, older adults with one child had lower odds of living alone (AOR: 0.70; 95% CI: 0.58–0.84), and those with two children had slightly lower odds (AOR: 0.82; 95% CI: 0.70–0.96).

Socio-economic factors showed differential effects. Older adults who owned land had 2.84 times higher odds of living alone than those without land (AOR: 2.84; 95% CI: 2.50–3.23). In contrast, belonging to the richest wealth quintile was associated with lower odds of living alone (AOR: 0.33; 95% CI: 0.28–0.39).

Employment status also mattered. Older adults who were currently working had lower odds of living alone (AOR: 0.34; 95% CI: 0.29–0.40), and those who had worked previously also had reduced odds (AOR: 0.59; 95% CI: 0.51–0.67).

Health characteristics showed relatively minor effects. Older adults reporting poor health had lower odds of living alone (AOR: 0.87; 95% CI: 0.78–0.98), and those without IADL limitations also showed lower odds (AOR: 0.72; 95% CI: 0.58–0.89).

Table 3
Adjusted Odds Ratios (AOR) for Factors Associated with Living Alone among Older Adults in India, 2017–18

Variables	Total AOR (95% CI)	Male AOR (95% CI)	Female AOR (95% CI)
Age (in years)			
60-69	Ref	Ref	Ref
70-79	0.76 (0.67-0.87)	0.83 (0.63-1.09)	0.75 (0.65-0.86)
80+	0.95 (0.80-1.13)	0.85 (0.61-1.18)	0.75 (0.65-0.86)
Sex			
Male	Ref	Ref	Ref
Female	0.71 (0.62-0.83)		

Place of residence			
Rural	Ref	Ref	Ref
Urban	1.81 (1.58-2.07)	1.23 (0.91-1.64)	1.98 (1.69-2.31)
Marital status			
Currently in a union	Ref	Ref	Ref
Not in union	0.02 (0.01-0.02)	0.02 (0.01-0.03)	0.01 (0.01-0.02)
Number of children			
More than two children	Ref	Ref	Ref
One child	0.70 (0.58-0.84)	0.64 (0.44-0.95)	0.73 (0.59-0.90)
Two children	0.82 (0.70-0.96)	0.91 (0.66-1.27)	0.81 (0.68-0.96)
Religion			
Hindu	Ref	Ref	Ref
Muslim	1.47 (1.20-1.79)	1.76 (1.12-2.76)	1.39 (1.10-1.74)
Christians	0.82 (0.69-0.98)	0.61 (0.42-0.87)	0.91 (0.74-1.12)
Other religion	2.24 (1.62-3.10)	2.16 (1.22-3.81)	2.28 (1.53-3.39)
Caste			
SC/ST	Ref	Ref	Ref
OBC	0.84 (0.73-0.96)	1.01 (0.75-1.35)	0.79 (0.68-0.93)
Other caste	1.07 (0.91-1.25)	1.11 (0.80-1.54)	1.04 (0.87-1.26)
Education			
No/primary	Ref	Ref	Ref
Secondary	1.20 (1.02-1.40)	1.17 (0.89-1.53)	1.19 (0.97-1.45)
Higher	1.07 (0.79-1.45)	1.05 (0.68-1.64)	1.27 (0.81-1.98)
Work status			
Never worked	Ref	Ref	Ref
Currently work	0.34 (0.29-0.40)	0.71 (0.45-1.14)	0.31 (0.26-0.37)
Work in past	0.59 (0.52-0.68)	1.13 (0.73-1.76)	0.57 (0.49-0.67)
Land ownership			
No land	Ref	Ref	Ref
Yes land	2.83 (2.49-3.23)	1.83 (1.42-2.37)	3.20 (2.75-3.72)

Wealth quintile			
Poorest	Ref	Ref	Ref
Poorer	1.34 (1.10-1.62)	1.23 (0.79-1.89)	1.36 (1.09-1.68)
Middle	0.84 (0.71-1.01)	0.84 (0.56-1.27)	0.83 (0.68-1.02)
Richer	0.59 (0.49-0.70)	0.50 (0.34-0.74)	0.60 (0.50-0.74)
Richest	0.33 (0.27-0.39)	0.24 (0.16-0.34)	0.35 (0.29-0.43)
Self-rated Health			
Good	Ref	Ref	Ref
Poor	0.87 (0.77-0.97)	0.88 (0.70-1.11)	0.86 (0.75-0.98)
ADL			
Need at least one ADL	Ref	Ref	Ref
No	0.91 (0.67-1.24)	0.83 (0.41-1.69)	0.92 (0.65-1.30)
IADL			
Need at least one IADL	Ref	Ref	Ref
No	0.72 (0.59-0.89)	0.92 (0.56-1.49)	0.69 (0.55-0.87)
Constant	7.250*** (0.259)	6.638*** (0.510)	7.234*** (0.354)

Note: Dependent variable = Living arrangement (1 = living alone; 0 = living with others). Results should be presented as **Adjusted Odds Ratios (OR) with 95% Confidence Intervals**. Alternatively, an OR > 1 indicates higher odds of living alone, and an OR < 1 indicates lower odds relative to the reference category.

Self-reported Health among Older Adults Living Alone

Table 4 shows large disparities in self-assessed health status among older persons living alone across various background variables. City-dwelling seniors rate their health better than their rural counterparts, indicated by a greater percentage reporting excellent health and a lower percentage reporting poor health. Large gender differentials emerge: older men not living alone rate their health higher than older women not living alone. Self-rated health worsens consistently with age, peaking in those 80 years and older, suggesting increased mortality risk for even older persons. Large socioeconomic differentials emerge because higher educational attainment and greater

wealth are significantly associated with better self-rated health. Also important is marital status: seniors not living alone who are currently married rate their health higher than those not living alone who are widowed or unmarried. Comparatively lower health status for seniors not living alone is found in both caste and religious groups, in which seniors not living alone who are Muslim rate their health worse.

Table 4

Self-Reported Health of an older and elderly person living alone in India by background characteristics, 2017-18

Characteristics	Excellent	Good	Fair	Poor	Total	N
Residence						
Rural	14.0	38.7	31.9	15.5	100	1,590
Urban	20.1	35.7	32.7	11.5	100	695
Gender						
Male	25.0	35.4	27.3	12.3	100	579
Female	12.7	38.6	33.8	14.9	100	1,706
Age group						
60-69	13.7	38.1	33.7	14.5	100	751
70-79	11.7	32.5	36.6	19.2	100	609
80+	13.8	29.7	35.6	20.9	100	239
Caste						
SC	14.7	33.4	36.1	15.9	100	416
ST	15.1	49.6	26.8	8.5	100	411
OBC	15.4	37.0	32.8	14.8	100	924
Others	17.9	33.2	32.4	16.4	100	524
Years of schooling						
Never	12.5	38.0	34.1	15.4	100	1,431
1 - 4 years	17.4	38.8	30.2	13.6	100	242
5 - 7 years	17.3	34.1	31.4	17.3	100	220
8+	26.3	38.4	26.3	9.0	100	391
Marital status						
Currently Married	32.9	37.6	21.4	8.1	100	173
Widowed/unmarried	14.4	37.8	33.0	14.8	100	2,112

Wealth						
Poorest	11.2	29.0	37.4	22.4	100	321
Poorer	12.9	33.1	41.7	12.2	100	278
Middle	17.0	38.1	29.7	15.1	100	370
Richer	15.8	39.7	32.5	12.0	100	499
Richest	18.1	41.5	27.7	12.7	100	817
Religion						
Hindu	16.3	37.0	32.7	13.9	100	1,714
Muslim	10.4	30.8	33.0	25.8	100	182
Christian	13.7	48.3	28.3	9.7	100	321
Others	27.9	25.0	32.4	14.7	100	68

Source: Calculated from LASI Wave 1 (2017-18) data individual file

Health Profile by Living Arrangement

To explore the relationship between living arrangement and health, Table 4 presents selected chronic conditions for older adults living alone and living with others. The results indicate some health conditions occur at higher rates for older adults living alone, while others do not differ much or at all by living arrangement. The most prevalent condition in both groups is, however, hypertension: among the older adults who live alone, it is significantly more prevalent, 31.5 per cent, compared to their 27.0 per cent of older adults who live with others. Similarly, arthritis or rheumatism is reported more by older adults living alone than by their counterparts, 18.0 per cent and 14.0 per cent, respectively, indicating a higher burden of selected chronic conditions among those who lived independently.

By contrast, the prevalence of diabetes is quite similar across living arrangements. Asthma and chronic heart disease also have relatively small differences between these two groups. In the case of less common but more serious conditions like cancer and stroke, prevalence among older adults who live alone is somewhat lower. This likely arises from health selection, in which serious health conditions make individuals less able to continue independent living and thus more inclined to co-reside with family. Among those aged

60 and over who live alone, neurological or mental conditions are more frequent, thereby supporting mental health vulnerabilities from social isolation. In summary, the results indicate that solitary living in later life reflects both selection processes and health vulnerability, rather than poorer health outcomes per se.

Table 5
Disease profile and living alone and non-living alone, 2017-18

Diseases	Living alone		Non-living alone	
	Percent	N	Percent	N
Hypertension				
Yes	31.5	727	27.0	19,150
No	68.5	1,581	73.0	50,600
Diabetes				
Yes	11.7	269	12.0	8,445
No	88.3	2,040	88.0	61,301
Cancer				
Yes	0.4	10	1.0	462
No	99.6	2,298	99.3	69,293
Asthma				
Yes	5.7	132	5.0	3,769
No	94.3	2,174	94.6	65,990
Chronic heart disease				
Yes	3.1	71	3.0	2,370
No	96.9	2,235	96.6	67,389
Stroke				
Yes	1.4	32	2.0	1,188
No	98.6	2,274	98.3	68,570
Arthritis or rheumatism				
Yes	18.0	415	14.0	9,747
No	82.0	1,894	86.0	60,010

Neurological or psychological problems				
Yes	2.6	60	2.0	1,509
No	97.4	2,249	97.8	68,238
High cholesterol				
Yes	2.6	60	3.0	2,364
No	97.4	2,249	96.6	67,390

Source: Calculated from LASI Wave 1 (2017-18) data individual file

In general, the condition of older adults living alone in India is the outcome of the interaction of demography, family support, socioeconomic resources, and health. The defining characteristics of living alone among older adults include marital status, urban residence, family availability, and functional health, as these reflect how living alone results from individual resources and structural constraints.

Discussion and Conclusion

The study examined the prevalence, determinants, and health profile of older adults living alone in India using nationally representative data from LASI wave 1 (2017-18). The finding shows that although living alone remains relatively uncommon among older adults, it is strongly associated with gender, marital status, family support, socio-economic conditions and health status. Older women, widowed individuals, and urban residents were more likely to live alone, indicating that living arrangements in later life reflect broader demographic and social transitions rather than individual choice alone (Summerfield & Gill, 2005; Chaudhuri & Roy, 2009).

The regression analysis further reveals that living alone is shaped by both structural and household-level factors. Marital status is found to be the most significant factor, confirming that the key factor that affects living alone is spousal death. Family availability, particularly the presence of children, continues to play an important role in supporting independent living among older adults in India. At the same time, economic resources and functional health influence the ability

to maintain solitary living arrangements. The observed differences in health conditions among those living alone suggest that solo living may represent both autonomy and vulnerability in later life.

Policy Implications

The findings have important policy implications in the context of population ageing in India.

1. Programmes targeting older adults should recognise those living alone as a priority group and strengthen community-based support systems, preventive health services, and social protection mechanisms.
2. Particular attention should be given to older women and widowed individuals who face greater risks of social isolation and limited family support.
3. Integrating ageing policy with housing, healthcare, and social-care interventions will be essential to promote healthy, secure, and dignified ageing in India.

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