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# Prevalence of Frailty Among the Elderly in an Urban Slum of Lucknow: A Community-Based Cross-Sectional Study

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**KEYWORDS**

Frailty, Urban Slums, Aged, Elderly

**ABSTRACT:**

Background:

Frailty is a common geriatric syndrome characterized by increased vulnerability to adverse health outcomes, especially among elderly individuals in low-resource urban environments. Despite the growing burden of aging in India, there is limited data on frailty among slum-dwelling elderly populations. This study aimed to assess the prevalence of frailty and its associated sociodemographic factors among the elderly residing in a slum area of Lucknow, Uttar Pradesh.

Methods:

A community-based cross-sectional study was conducted from March 2024 to January 2026 in Sarvodaya Nagar, Lucknow. A total of 322 elderly individuals aged ≥60 years were interviewed using a multistage sampling technique with Probability Proportional to Size (PPS) from 16 slum pockets. Data was collected through face-to-face interviews and physical examinations using a pre-tested semi-structured questionnaire. Frailty was assessed using the Fried Frailty Phenotype criteria. Descriptive and inferential statistical analyses were performed using SPSS v22.

Results:

The mean age of participants was 66.5 ± 6.6 years, with 55.2% males and 52.4% illiterate. The majority (53.1%) belonged to lower socioeconomic Class IV. Prevalence of pre-frailty and frailty was found to be 67.7% and 32.2%, respectively. The most prevalent frailty components were weak handgrip (99.3%) and slow walking speed (95%). Frailty showed a significant association with increasing age ($p < 0.001$), male gender ($p < 0.001$), marital status ($p = 0.0088$), and both current and past occupational status ($p < 0.01$).

Conclusion:

The study revealed a high burden of frailty and pre-frailty among elderly individuals in urban slums, driven by age, physical labor history, low education, and poor nutrition. The absence of robust individuals indicates widespread vulnerability in this marginalized population. Integrating frailty screening into primary healthcare and implementing targeted interventions—such as nutritional support, physical activity, and chronic disease management—are critical to improving functional outcomes and quality of life in these settings.

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## INTRODUCTION:

Population ageing represents one of the most profound demographic transformations of the twenty-first century and has emerged as a major global public health concern. Improvements in healthcare, sanitation, nutrition and disease control have led to substantial decline in fertility and mortality rates resulting in a steady increase in life expectancy across most regions of the world. This demographic transition has altered population age structure with a growing proportion of older adults contributing to the shifting healthcare needs and societal demands. United Nations estimates indicate that the number of older persons worldwide increased from approximately 962 million in 2017 to more than 1 billion in 2020 and is projected to reach 1.4 billion by 2030 and 2.1 billion by 2050.[1]

The World Health Organization (WHO) has recognized population ageing as a global priority, emphasizing a shift from disease-centric approaches to those promoting functional ability. The concept of "Healthy Ageing" involves developing and maintaining the functional ability that enables well-being in older age. Functional ability is determined by the interaction between an individual's intrinsic capacity—comprising physical and mental capacities—and the environments in which they live.[2] This framework underscores the importance of addressing not only diseases but also functional decline, social participation, and supportive environments throughout the life course.

Ageing is frequently accompanied by a progressive decline in physiological reserves, making older individuals more vulnerable to stressors such as illness, injury, and environmental challenges. This vulnerability manifests as geriatric syndromes—multifactorial health conditions like frailty, falls, functional impairment, cognitive decline, and incontinence. Among these, frailty has gained increasing recognition due to its strong association with adverse health outcomes, including disability, hospitalization, institutionalization, reduced quality of life, and mortality.

Frailty reflects a state of increased vulnerability arising from age-related declines in multiple physiological systems, leading to diminished resilience and impaired ability to cope with every day or acute stressors. Importantly, frailty is distinct from chronological ageing and comorbidity; individuals of the same age may exhibit markedly different levels of physiological reserve and functional capacity.[3,4] From a public health perspective, addressing frailty aligns closely with the goals of healthy ageing. Early identification in community settings provides an opportunity for timely preventive interventions, including nutritional support, physical activity promotion, and chronic disease management.

Despite being a major medical hub with tertiary care facilities, access to geriatric services for slum residents in Lucknow is often limited by financial barriers, lack of awareness, and physical distance. The primary healthcare system in these underserved areas is frequently overwhelmed by maternal and child health priorities, leaving the complex needs of the ageing population—particularly those related to geriatric syndromes like frailty—largely unaddressed. Understanding the specific burden of frailty in this local context is essential for tailoring urban health interventions under national programs.

Understanding the prevalence and determinants of frailty in elderly slum residents of Lucknow is essential. Such evidence will help to inform context-specific interventions, particularly in resource-constrained urban settings. It will enable the identification of vulnerable individuals, improve risk stratification, and promote targeted community-based interventions. Furthermore, it will support the efficient allocation of healthcare resources and strengthen the implementation of national initiatives like NPHCE.

## AIM & OBJECTIVES:

The aim of the present study is to study frailty among elderly population in a slum area of Lucknow. The objectives are to determine the prevalence of frailty among the elderly population living in a slum area of Lucknow and to explore whether any association exists between frailty and the socio-demographic characteristics of this population.

## MATERIAL & METHODS

A community-based cross-sectional study design was employed to assess the prevalence of frailty and its associated factors among the elderly population. The study was conducted in Sarvodaya Nagar, Lucknow, which serves as the field practice area of the Urban Health Training Centre affiliated with the Integral

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Institute of Medical Sciences and Research. The entire study was completed over a period of 22 months from March 2024 to January 2026. The target population for this study comprised elderly individuals aged 60 years and above who were permanent residents of the selected slum areas. The age cut-off of 60 years was adopted in accordance with the definition of 'elderly' as per the Government of India and the World Health Organization guidelines for developing countries.

Participants who were 60 years or above, permanent residents of the identified slum areas, and those who provided informed consent for participation were included in the study. Individuals who did not provide consent were excluded from the study. Additionally, those who were unable to comprehend or respond to the interviewer independently, and for whom no reliable proxy respondent was available during the time of interview, were excluded. Households that were found locked or where the respondent was not available even after two consecutive visits conducted at one-week intervals were also excluded from the final sample.

The sample size for this study was calculated using the standard formula for estimating a single proportion in a cross-sectional study: $n = [Z^2 \times p \times q] / d^2$ , where $n$ represents the desired sample size, $Z$ is the standard normal variate corresponding to a 95% confidence level (1.96), $p$ is the anticipated prevalence of frailty (assumed to be 25% based on findings from previous studies in similar settings, such as Panda et al.), $q$ is 1-$p$ (i.e., 75%), and $d$ is the absolute precision or margin of error, set at 5%. Based on this calculation, the required sample size was 288 elderly individuals. However, taking into account an estimated 10% non-response rate due to potential refusals, incomplete interviews, or other unforeseen challenges, the sample size was increased proportionately. Thus, the final sample size was determined to be 320 elderly individuals.

A multistage sampling methodology was employed to ensure that the sample drawn for the study was representative of the elderly population residing in various slum pockets within the designated study area. Initially, two administrative wards—Lal Bahadur Shastri Ward (Ward No. 12, Zone-4) and Ayodhyadas Ward (Ward No. 3, Zone-3), also known as Ayodhya Prasad Ward—were purposively selected based on operational feasibility and the presence of a well-defined slum population under the Urban Health Training Centre's field practice area in Sarvodaya Nagar. A comprehensive enumeration of all officially recognized slum pockets within these wards was then conducted using the slum list provided by the Lucknow Municipal Corporation under the Rajiv Awas Yojna. This exercise revealed a total of 16 slum pockets, with Ayodhyadas Ward accounting for 13 slums comprising 25,650 residents, and Lal Bahadur Shastri Ward consisting of 3 slums with a total population of 3,350. Thus, the combined study area covered approximately 29,000 slum residents. To allocate the total sample of 320 households proportionately across these slum pockets, the Probability Proportional to Size (PPS) sampling method was applied. This ensured that slum pockets with larger populations contributed a correspondingly higher number of participants to the study. Within each slum pocket, households were selected using PPS, and in each selected household, eligibility was determined based on the presence of individuals aged 60 years or above. In households with more than one eligible elderly person, one participant was randomly selected using the chit (lottery) method to eliminate selection bias. In cases of non-response—either due to locked homes or unavailability of the respondent—a second visit was made on a different day. If the household remained inaccessible after two consecutive visits, the immediately adjacent household was selected as a replacement to maintain the sample size and randomness of the process.

Data collection in this study was carried out through structured face-to-face interviews and physical examinations using standardized tools. A semi-structured, pre-tested questionnaire was specifically developed for this purpose, incorporating health deficit indicators based on the frailty index methodology by Searle et al. The tool was divided into sections capturing socio-demographic details, medical history, and frailty assessment components following Fried's Frailty Phenotype, which includes five criteria: unintentional weight loss, exhaustion, low physical activity, weakness (grip strength), and slow walking speed. Objective measurements were obtained using calibrated instruments such as a digital weighing scale, hand-held dynamometer, measuring tape, and stethoscope. Frailty was defined as the presence of three or more criteria, with pre-frailty categorized as having one or two. A detailed data collection procedure was followed, involving

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household identification, informed consent, private interviews, anthropometric measurements, and clinical assessments. Individuals with significant health issues were referred for further care. All operational definitions adhered to national and WHO guidelines. Data management involved careful entry, cleaning, and analysis using SPSS v22. Descriptive and inferential statistics, including chi-square tests and t-tests, were applied, with a significance threshold of $p < 0.05$. Additionally, the Frailty Index was computed and categorized into low, moderate, and high levels. Ethical clearance was obtained from the institutional review board, and all participants provided informed consent. Confidentiality and participant autonomy were strictly maintained throughout the study.

**RESULTS:**

**Table 1: Sociodemographic Characteristics of Study Participants (n=322)**

| Characteristic | | No. | % |
|---|---|---|---|
| Age (in years) | 60-65 | 197 | 61.1 |
| | 66-70 | 51 | 15.8 |
| | 71-75 | 40 | 12.4 |
| | 76-80 | 17 | 5.2 |
| | 81-85 | 14 | 4.3 |
| | >85 | 3 | 0.9 |
| Gender | Male | 178 | 55.2 |
| | Female | 144 | 44.7 |
| Religion | Hindu | 186 | 57.7 |
| | Muslim | 136 | 42.2 |
| Marital Status | Never Married | 1 | 0.3 |
| | Married | 259 | 80.4 |
| | Divorced | 5 | 1.5 |
| | Widowed | 57 | 17.7 |
| Education | Illiterate | 169 | 52.4 |
| | Primary School | 87 | 27 |
| | Secondary School | 30 | 9.3 |
| | High School | 16 | 4.9 |
| | Intermediate | 15 | 4.6 |
| | Graduate | 4 | 1.2 |
| | Post-Graduate | 1 | 0.3 |
| Present Occupation | Retired | 31 | 9.6 |
| | Unemployed | 185 | 57.4 |
| | House Wife | 83 | 25.7 |
| | Daily Wage Worker | 7 | 2.1 |
| | Government Job | 4 | 1.2 |
| | Private Job | 2 | 0.6 |
| | Business | 6 | 1.8 |
| | Skilled Worker | 3 | 0.9 |
| | Professional Worker | 1 | 0.3 |
| Previous Occupation | House Wife | 112 | 34.7 |
| | Unemployed | 0 | 0 |

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| | | | |
|---|---|---|---|
| | Daily Wage Worker | 90 | 27.9 |
| | Government Job | 17 | 5.2 |
| | Private Job | 31 | 9.6 |
| | Business | 17 | 5.2 |
| | Skilled Worker | 54 | 16.7 |
| | Professional Worker | 1 | 0.3 |
| Socioeconomic Status* | Class I | 2 | 0.6 |
| | Class II | 14 | 4.3 |
| | Class III | 62 | 19.2 |
| | Class IV | 171 | 53.1 |
| | Class V | 73 | 22.6 |
| Number of family members | <2 | 1 | 0.3 |
| | 2 – 5 | 100 | 31 |
| | 6 – 10 | 163 | 50.6 |
| | >10 | 58 | 18 |
| Type of Family | Joint | 155 | 48.1 |
| | Nuclear | 167 | 51.8 |

*According to Modified B. G. Prasad Scale updated in 2025

**Table 2: Distribution of Fried's frail components present among the participants (n=322)**

| Fried's frail components | Participants in whom the frailty criteria were positive | |
|---|---|---|
| | No. | % |
| Hand grip | 320 | 99.3 |
| Walking speed | 306 | 95 |
| Unintentional weight loss | 35 | 10.8 |
| Difficulty in walking | 23 | 7.1 |
| Feel less active | 33 | 10.2 |

**Table 3: Association of frailty and various sociodemographic factors of study participants (n=322)**

| Association of Frailty with Various Socio-demographic factors | | | | | | |
|---|---|---|---|---|---|---|
| Sociodemographic Factors | | Frail (104) | | Pre- Frail (218) | | p-value |
| | | No. | % | No. | % | |
| Age (in years) | 60-65 | 42 | 40.3 | 157 | 72 | **< 0.001** |
| | 66-70 | 18 | 17.3 | 32 | 14.6 | |
| | 71-75 | 21 | 20.1 | 19 | 8.7 | |
| | 76-80 | 10 | 9.6 | 6 | 2.7 | |
| | 81-85 | 11 | 10.5 | 3 | 1.3 | |
| | >85 | 2 | 1.9 | 2 | 0.9 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Gender | Male | 77 | 74 | 101 | 46.3 | **< 0.001** |
| | Female | 27 | 25.9 | 117 | 53.6 | |
| Religion | Hindu | 63 | 60.5 | 123 | 56.4 | 0.558 |
| | Muslim | 41 | 39.4 | 95 | 43.5 | |
| Marital Status | Never Married | 73 | 70.1 | 186 | 85.3 | **0.0088** |
| | Married | 29 | 27.8 | 28 | 12.8 | |
| | Divorced | 2 | 1.9 | 3 | 1.3 | |
| | Widowed | 0 | 0 | 1 | 0.4 | |
| Education | Illiterate | 49 | 47.1 | 120 | 55 | 0.791 |
| | Primary School | 31 | 29.8 | 56 | 25.6 | |
| | Secondary School | 10 | 9.6 | 20 | 9.1 | |
| | High School | 7 | 6.7 | 9 | 4.1 | |
| | Intermediate | 5 | 4.8 | 10 | 4.5 | |
| | Graduate | 2 | 1.9 | 3 | 1.3 | |
| | Post-Graduate | 0 | 0 | 0 | 0 | |
| Present Occupation | Retired | 14 | 13.4 | 17 | 7.7 | 0.0011 |
| | Unemployed | 75 | 72.1 | 110 | 50.4 | |
| | House Wife | 12 | 11.5 | 71 | 32.5 | |
| | Daily Wage Worker | 1 | 0.9 | 10 | 4.5 | |
| | Government Job | 0 | 0 | 2 | 0.9 | |
| | Private Job | 1 | 0.9 | 1 | 0.4 | |
| | Business | 1 | 0.9 | 4 | 1.8 | |
| | Skilled Worker | 0 | 0 | 2 | 0.9 | |
| | Professional Worker | 0 | 0 | 1 | 0.4 | |
| Previous Occupation | House Wife | 20 | 19.2 | 92 | 42.2 | 0.0018 |
| | Unemployed | 0 | 0 | 0 | 0 | |
| | Daily Wage Worker | 39 | 37.5 | 56 | 25.6 | |
| | Government Job | 5 | 4.8 | 13 | 5.9 | |
| | Private Job | 15 | 14.4 | 13 | 5.9 | |
| | Business | 8 | 7.6 | 13 | 5.9 | |
| | Skilled Worker | 17 | 16.3 | 31 | 14.2 | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| | Professional Worker | 0 | 0 | 1 | 0.4 | |
| Socioeconomic Status (Acc. to Mod. B. G. Prasad 2025) | Class I | 0 | 0 | 2 | 0.9 | 0.4486 |
| | Class II | 2 | 1.9 | 12 | 5.5 | |
| | Class III | 23 | 22.1 | 39 | 17.8 | |
| | Class IV | 55 | 52.8 | 116 | 53.2 | |
| | Class V | 24 | 23 | 49 | 22.4 | |

The results presented in the Table 1 demonstrated the mean age was 66.5 ± 6.6 years, with the majority (61.1%) belonging to the 60–65-year age group. Males constituted 55.2% of the sample, while females accounted for 44.7%, indicating a slight male predominance. In terms of religious affiliation, out of 322 participants, 186 (57.7%) identified as Hindu and 136 (42.2%) as Muslim. Regarding marital status, most participants were married (80.4%), followed by widowed (17.7%), with only a small proportion being divorced (5%) or never married (0.3%). Educational attainment was notably low among participants, over half (52.4%) were illiterate, and only a small fraction (1.5%) had completed graduate or postgraduate education. Primary and secondary education accounted for 27% and 9.3%, respectively.

Regarding current occupation, the majority were unemployed (57.4%) or housewives (25.7%), with a smaller proportion being retired (9.6%). The distribution of previous occupation showed that 34.7% had been housewives throughout life, while a substantial number had worked as daily wage laborers (27.9%) or skilled workers (16.7%). Few participants had held government (5.2%) or private sector (9.6%) jobs, and professional or business backgrounds were rare. Socioeconomic status, as classified using the Modified B.G. Prasad Scale (2025), revealed that a majority of participants fell into Class IV (53.1%), followed by Class V (22.6%) and Class III (19.2%). Only 4.3% belonged to Class II, and a minimal 0.6% were classified under Class I. A majority of participants resided in families comprising 6 to 10 members (50.6%), while 31% lived in smaller households of 2 to 5 members, and 18% in extended families with more than 10 members. The mean household size was ± 3.5, indicating the prevalence of moderately large families. Regarding family structure, 51.8% of participants belonged to nuclear families, while 48.1% were part of joint families.

It was found that impaired handgrip strength was the most prevalent criterion, observed in 99.3% of participants, followed by reduced walking speed, present in 95%. Less commonly reported were unintentional weight loss (10.8%), self-reported exhaustion or feeling less active (10.2%), and difficulty in walking (7.1%). (Fig.1) It was observed that majority of the participants were classified as pre-frail (67.7%), while 32.2% were frail. (Fig.2) Table 3 presents the distribution of Fried's frailty scores among the study participants. This scoring system is based on the cumulative presence of five frailty criteria—weak handgrip, slow walking speed, unintentional weight loss, exhaustion, and difficulty walking—with a total possible score ranging from 0 to 5. In this cohort, none of the participants had a score of 0, indicating that all individuals exhibited at least one frailty characteristic. The majority of participants scored 1 (30.1%) or 2 (37.5%), classifying them as pre-frail. A smaller but clinically significant proportion had scores of 3 (17.3%), 4 (10.2%), or the maximum score of 5 (4.6%), categorizing them as frail.

While examining the statistical association between frailty status (Frail vs. Pre-frail) and various sociodemographic factors of the study participants (Table 3), a highly significant association was observed between age and frailty (**p < 0.001**). While the largest proportion of pre-frail individuals (72%) were aged 60–65 years, the prevalence of frailty increased progressively with age. Frail participants were more frequently seen in the 71–85+ year categories, with 20.1% aged 71–75 and 10.5% aged 81–85. There was a statistically significant association between gender and frailty (**p < 0.001**). Among frail individuals, 74% were male, whereas pre-frailty was more prevalent among

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females (53.6%). Marital status showed a statistically significant association with frailty (**p = 0.0088**). There was a statistically significant association between present occupational status and frailty (**p = 0.0011**). The majority of frail participants were unemployed (72.1%), followed by retired individuals (13.4%), while only 11.5% were housewives. In contrast, a larger portion of pre-frail individuals were housewives (32.5%), and fewer were unemployed. Previous occupation also showed a significant association with frailty (**p = 0.0018**). A large proportion of frail individuals had previously worked as daily wage laborers (37.5%) or in physically demanding jobs, such as skilled labor (16.3%). In contrast, pre-frail individuals had a higher representation among housewives (42.2%).

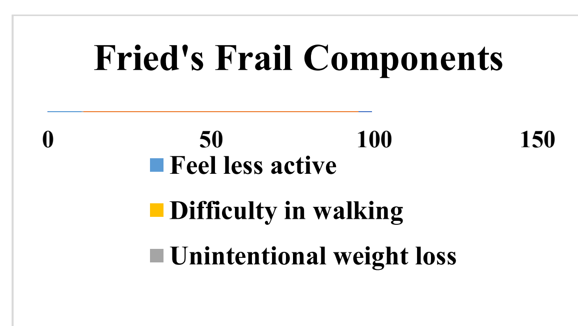


**Figure 1: Distribution of study participants according to the presence of Fried's Frailty Component**

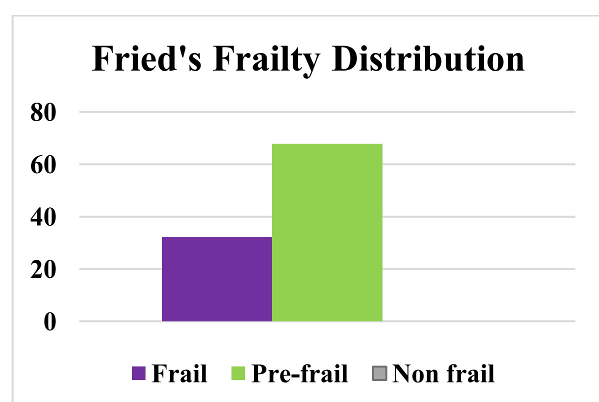


**Figure 2: Distribution of study participants according to their Fried's Frailty Status**

**DISCUSSION:**

The present study demonstrates a high prevalence of frailty and pre-frailty among older adults residing in low-resource settings, based on Fried's frailty phenotype criteria. The most common frailty components identified were weak handgrip strength (99.3%) and reduced walking speed (95%), both of which are direct indicators of sarcopenia and declining functional capacity. These findings align closely with those reported by Cherukuri et al. in Andhra Pradesh, who also observed high rates of physical performance deficits among the elderly.[5] The relatively lower prevalence of unintentional weight loss (10.8%) and exhaustion (10.2%) corresponds with the work of Sandhya et al. in Kerala, who observed physical frailty markers as being more common than psychological ones in community-dwelling elders.[6] The 7.1% reporting walking difficulty further corroborates the functional limitations documented by Ghose et al. in West Bengal.[7]

The absence of any robust individuals (0% with a frailty score of 0) in this cohort is alarming and suggests widespread functional vulnerability. This pattern contrasts with national averages reported in studies such as those by Meratwal et al. in Rajasthan and Debnath et al. in North India, where a minority (10–15%) of older adults were classified as robust.[8,9] This discrepancy may be attributed to the socioeconomically disadvantaged background of the current study's population, supporting the association between low income, limited healthcare access, and frailty. The majority of participants (67.7%) were pre-frail, highlighting a critical window for intervention. Early identification and preventive strategies targeting this group can significantly delay or reverse progression to frailty, as emphasized by Dent et al. in the Asia-Pacific guidelines.[10] The significant proportion of individuals categorized as frail (32.2%) is higher than many other Indian community-based studies, such as those by Bande et al. in Chandigarh (19%) and Kaur et al. in Punjab (24%).[11,12]

The observed prevalence of frailty in the study sample corroborates findings from similar Indian urban slum studies. For instance, Prasad et al. (2019) reported a frailty prevalence of 41.5% in Bengaluru slums, while Patel et al. (2020) found a prevalence of 45.6% in Mumbai slums.[13,14] Such figures are significantly higher than national urban averages, highlighting the compounded health risks posed by poverty, poor living conditions, and inadequate access to healthcare services in slum environments.

The findings of present study provide a comprehensive understanding of the associations between frailty and various sociodemographic, clinical, behavioral, and functional parameters in an elderly population using both the Fried Phenotype Model and the Frailty Index (FI). Age showed a significant association with frailty ($p < 0.001$), confirming that frailty increases with advancing age. This aligns with Fried et al. who demonstrated frailty prevalence rising sharply in the oldest age groups due to progressive physiological decline.[3] Similar age-related frailty patterns were also observed in studies by Rolfson et al.[15] Gender, significantly associated with frailty in this study ($p < 0.001$), revealed higher frailty among males, contrasting with global trends where females are more frail, as reported by Fried et al.[3] and Collard et al.[16] Marital status was also significant ($p = 0.0088$), with unmarried or widowed participants more likely to be frail. This supports the role of social support in mitigating frailty, in line with findings from Gobbens et al.[17] Education and religion did not show significant associations with frailty, mirroring findings by Kaur et al., who noted that literacy levels had less impact when socio-environmental factors and chronic diseases were accounted for.[12]

The results indicate a strong inverse relationship between educational attainment and frailty, in line with national and international evidence that low education limits access to health information, nutrition, and healthcare services. Studies such as Biritwum et al. (2016) and Ghosh et al. (2023) have emphasized how lower socioeconomic and educational status increase frailty vulnerability, especially in LMIC urban settings.[18,19]

Frailty was significantly associated with both present ($p = 0.0011$) and past occupations ($p = 0.0018$). Participants who were currently unemployed or had previously been daily wage laborers or skilled workers exhibited higher frailty. These results are consistent with Abellan van Kan et al., who highlighted the long-term impact of physically demanding jobs on late-life frailty.[20] The link between manual labor and frailty was also supported in Indian studies by Kumar et al.[21] Family income and socioeconomic class did not show significant associations, likely due to the relative homogeneity of low-income status among participants. Similar nonsignificant findings were reported by Biritwum et al. in Ghana, where poverty was widespread.[18]

**CONCLUSION:**

In conclusion, this study highlights frailty as a pressing and multidimensional public health concern among the elderly living in urban slums of Lucknow. The findings demonstrate a high prevalence of frailty and pre-frailty, closely linked to advancing age, female gender, low education, economic dependence, and chronic health conditions. These results underscore the compounded vulnerabilities faced by older adults in marginalized settings, where socioeconomic hardship and environmental stressors accelerate functional decline. The successful application of the Fried Frailty Phenotype tool affirms its practicality for community-based screening. Moving forward, there is an urgent need to integrate frailty assessment into primary care and design targeted, gender- and age-sensitive interventions—focusing on nutrition, physical activity, chronic disease management, and caregiver support—to prevent disability and improve quality of life in vulnerable elderly populations.

**LIMITATIONS & RECOMMENDATIONS:**

This study, while offering valuable insights into frailty among the elderly in urban slum settings, has several limitations that warrant consideration. The cross-sectional design restricts causal interpretations, and the reliance on self-reported data introduces the possibility of recall bias, particularly in a low-literacy population. The exclusion of severely ill or bedridden individuals may have led to an underestimation of frailty prevalence, and the focus on physical frailty alone omits important psychosocial dimensions such as cognitive decline and social isolation. Additionally, the study's geographic scope was limited to a few slum pockets in Lucknow, which may limit generalizability to other diverse slum populations across India. Future research should adopt longitudinal designs, include multidimensional frailty assessments, and expand coverage to ensure more comprehensive and representative findings.

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