

Frailty in Old Age in Sri Lanka: A Narrative Review

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Introduction

Frailty has emerged as a central construct in geriatric medicine, describing a state of increased vulnerability to stressors due to age-related decline across multiple physiological systems. Clinically, frailty is associated with higher risks of falls, disability, hospitalisation, institutionalisation and mortality, often independent of chronological age and comorbidity burden. Internationally, frailty prevalence among community-dwelling older adults in Asia ranges from about 3.5% to over 50%, depending on the population and tools used, with a pooled estimate of 20–25% in many meta-analyses of Asian cohorts [1].

Sri Lanka is one of the fastest-ageing countries in Asia. Demographic projections by the Department of Census and Statistics and UNFPA indicate that the proportion of older persons (≥60 years) will rise from 12.4% in 2012 to around 22–25% by the early 2040s, meaning that one in four Sri Lankans will be an older person by 2041 [2]. This demographic shift is already reshaping the country's disease profile, with non-communicable diseases (NCDs), multimorbidity and functional decline dominating the morbidity landscape in older adults. Recent policy commentary has emphasised that the health system must adapt rapidly to this demographic reality, with healthy ageing and geriatric care identified as urgent priorities [3]. Within this context, frailty provides a unifying framework to understand and address the complex needs of older people in Sri Lanka.

This review synthesises available evidence on frailty in Sri Lanka, including its epidemiology, determinants, clinical consequences, assessment practices, and management strategies, while situating local findings within broader Asian and global literature. It also highlights health system and policy implications and identifies priority areas for future research. Throughout, only data that can be verified from published or publicly accessible sources are cited.

Epidemiology of Frailty in Sri Lanka.

The most robust population-based estimate of frailty in Sri Lanka comes from a cross-sectional study of rural community-dwelling older adults in Kegalle district. Using the Fried frailty phenotype, Siriwardhana and colleagues reported a frailty

prevalence of 15.2% (95% CI 12.3–18.6) and pre-frailty prevalence of 48.5% (95% CI 43.8–53.2) among adults aged 60 years and over [4]. This places Sri Lanka squarely within the range observed in other Asian countries, where community-dwelling frailty prevalence typically lies between 5% and 30% [1]. Importantly, the Kegalle study also showed that frailty was strongly associated with increasing age and lower socioeconomic position, as reflected by occupation and educational level [4].

A subsequent study from the same rural district examined the association between frailty and disability, demonstrating that frail and pre-frail older adults had substantially higher rates of limitations in instrumental activities of daily living (IADL). Among frail older adults, 84.4% had at least one IADL limitation, with frailty and pre-frailty both independently associated with poorer functioning after adjusting for demographic and clinical covariates [4]. Another analysis from this cohort found that both frailty and pre-frailty were associated with poorer health-related quality of life, even after adjustment for multiple confounders [5]. Together, these rural studies underline that frailty is common and clinically meaningful in Sri Lankan community settings.

Data from clinical settings indicate even higher frailty prevalence. A 2023 study from the outpatient department of the University Hospital Kotelawala Defence University assessed 406 patients aged ≥65 years using the PRISMA-7 questionnaire and reported that 39.7% (95% CI 34.9–44.6) were frail [6]. Frailty was more prevalent among men than women in this clinic-based sample, and frailty prevalence increased with age, with over 60% of those aged ≥85 years classified as frail [6]. This figure is substantially higher than the rural Kegalle estimate, which is expected because hospital outpatient populations are enriched with individuals living with multiple chronic conditions. The same paper cites an earlier Colombo district study using a locally validated frailty instrument that reported a frailty prevalence of 14.9% among community-dwelling older adults, with higher rates among those aged ≥75 years [6]. Although details from that Colombo study are available only in abstract form, taken together, these data suggest that community prevalence may cluster around 15–20%, with marked increases in clinical and higher-

risk populations. At the regional level, a systematic review and meta-analysis of frailty in Asian community-dwelling older adults (including Sri Lanka) reported a pooled frailty prevalence of 20.5% and pre-frailty prevalence of 43.9%, with substantial heterogeneity by country, setting and instrument [7]. Sri Lankan estimates, especially the Kegalle community study and the KDU outpatient cohort, fall within the upper range of this spectrum, signalling a significant frailty burden that is likely to grow as the population ages.

Determinants of Frailty: Biological, Clinical and Social.

Frailty in Sri Lanka arises from a multifactorial interplay of biological ageing, chronic disease, nutritional deficiencies, psychosocial factors and environmental conditions. While many determinants mirror those identified in global literature, local studies shed light on several context-specific features.

Biologically, sarcopenia—the age-related decline in muscle mass and strength—appears to be a key driver and correlate of frailty. Although national prevalence estimates of sarcopenia are limited, Sri Lankan research and regional reviews suggest that sarcopenia becomes increasingly common with age and is strongly influenced by nutrition, physical activity and comorbid disease [8]. A recent cross-sectional study from Polonnaruwa district, for example, reported a sarcopenia prevalence of 49.6% among older adults, with slightly higher rates in women than men [9]. Another study of older adults in institutional care found severe sarcopenia in a majority of those classified as sarcopenic, highlighting the vulnerability of institutionalised populations [10]. Although these studies focused on sarcopenia rather than frailty per se, they underscore the high burden of muscle impairment, which is a key physical component of frailty.

Nutritional factors are central to the frailty pathway. A community-based study of older adults in Sri Lanka found that 35.3% were undernourished using a composite anthropometric index, with undernutrition more common in women, the oldest-old, and those of lower socioeconomic status [11]. Another national-level analysis reported that poor dietary variety was common across age groups and that increasing age was associated with higher odds of low muscle mass [12]. These findings resonate with clinical impressions that many older Sri Lankans consume diets low in high-quality protein and micronutrients, particularly in rural and low-income settings, contributing to sarcopenia, frailty and functional impairment.

Multimorbidity and non-communicable diseases (NCDs) represent another major determinant of frailty. The KDU outpatient study showed high rates of hypertension (49.5%), dyslipidaemia (45.6%) and diabetes mellitus (38.7%) among older attendees, with nearly three-quarters having three or more comorbidities [6]. These patterns are consistent with national data showing that cardiovascular disease, diabetes and chronic kidney disease dominate hospital admissions and outpatient visits in older age groups [13]. In frail older adults, such multimorbidity may lead to cumulative deficits across multiple organ systems, amplifying vulnerability.

Psychosocial and socioeconomic factors are equally important. In the rural Kegalle frailty study, lower education and manual or agricultural occupations were associated with greater odds of frailty and pre-frailty, suggesting that cumulative lifetime disadvantage and physically demanding work may predispose to later-life vulnerability [4]. The same research group reported that frail and pre-frail older adults had significantly worse health-related quality of life than robust peers, even after accounting for age and comorbidities, indicating that frailty is intertwined with psychosocial well-being [5]. Broader work on ageing in Sri Lanka has highlighted that many older people face financial insecurity, social isolation, and reduced family support due to labour migration and changing family structures, which further undermine resilience in late life [2].

Environmental and healthcare-system factors also shape frailty risk. Rural elders may face greater barriers to healthcare access, rehabilitation services and assistive devices, while urban low-income populations often live in congested environments with fall hazards and limited space for physical activity. Scoping work on falls among older adults in Sri Lanka emphasises the interaction between individual frailty, environmental risks (such as poor lighting and uneven floors) and lack of preventive services [14]. The absence of systematic geriatric assessment in most clinical settings means that frailty and its determinants often remain unrecognised until advanced.

Clinical Consequences: Disability, Falls, Hospitalisation and Mortality.

Sri Lankan and international data converge on the conclusion that frailty is strongly associated with adverse outcomes. In the rural Kegalle cohort, frail and pre-frail older adults had significantly higher levels of functional disability and limitations in IADL than robust individuals, with frailty status independently predicting poorer functioning [15]. The same group showed that frailty and pre-frailty were associated with lower quality of life, even after

controlling for multiple confounders [6]. These findings mirror international evidence that frailty is a powerful predictor of disability, reduced quality of life and loss of independence.

Falls constitute one of the most visible and costly consequences of frailty. A community-based study from Southern Sri Lanka, involving rural older adults, reported a 34.3% prevalence of falls and 9.6% prevalence of recurrent falls in the preceding year [16]. Risk factors included dizziness, difficulty walking and visual impairment. Although frailty was not explicitly measured in that study, such risk factors are typical components of frailty syndromes and are likely to co-occur. A more recent study of institutionalised older adults in Kandy district reported a falls prevalence of 47.1%, with 28.5% classified as fallers and 18.6% as frequent fallers [17]. Lower body flexibility and reduced cardiovascular endurance were significantly associated with falling, pointing again towards the importance of sarcopenia and deconditioning in the frailty-falls nexus. A scoping review of falls among older adults in Sri Lanka highlighted that falls represent a major cause of injury, disability and health service use, and that falls risk is likely higher among frail individuals, though specific frailty-falls data remain limited [14].

At the national level, Global Burden of Disease estimates indicate that falls among older people in Sri Lanka account for around 3.1% of total years lived with disability (YLDs), underscoring their substantial contribution to the country's disability burden [18]. Given that frailty is a consistent predictor of falls in international research, it is highly plausible that frailty is a major upstream driver of this burden in Sri Lanka as well.

Hospitalisation and health service use are also closely linked to frailty. In the KDU outpatient study, frail older adults commonly presented with musculoskeletal pain, dizziness, leg ulcers and other chronic complaints, and a notable proportion required hospital admission [6]. Although the study did not specifically examine outcomes by frailty status, international data consistently show that frail older adults have higher rates of hospitalisation, longer lengths of stay and more complications than non-frail peers [1]. Local geriatric and health policy commentaries warn that as the frail older population grows, demand on acute care, rehabilitation and long-term care services will increase sharply, straining existing resources [3].

Mortality data specific to frailty in Sri Lanka are sparse, but multiple international cohort studies and meta-analyses demonstrate that frailty is a strong predictor of all-cause mortality, with frail individuals experiencing two- to four-fold higher death rates compared with robust peers [1]. Given

similarities in patterns of frailty, comorbidity and healthcare access, it is reasonable to infer that frailty likely confers substantially elevated mortality risk among Sri Lankan elders as well, particularly in the context of hospitalisation and major surgery.

Frailty Assessment in Sri Lankan Practice and Research

Frailty can be measured using deficit-accumulation indices, physical phenotype models or pragmatic screening tools. In Sri Lanka, research has utilised several internationally recognised instruments, but no single tool has yet been universally adopted in routine clinical practice.

The rural Kegalle study used the Fried frailty phenotype, which operationalises frailty based on weight loss, exhaustion, low physical activity, slow walking speed and weak grip strength [4]. This model, while resource-intensive, provides a well-validated measure of physical frailty and has facilitated comparison with international cohorts. The same research programme has also examined how frailty, so defined, relates to disability and quality of life [15].

In the KDU outpatient study, frailty was assessed using the PRISMA-7 questionnaire, a brief seven-item instrument originally developed for primary care screening [6]. The authors note that PRISMA-7 has not been formally validated in Sri Lanka, but it was chosen for its feasibility in a busy outpatient setting. This underscores a common tension between psychometric rigour and clinical practicality in low-resource environments.

Other Sri Lankan work (cited within Jayasekera et al.) has used a locally validated frailty instrument in Colombo district, and there are emerging efforts to adapt geriatric quality of life tools—such as the Sinhala version of the SarQoL® questionnaire for sarcopenia—for local use [19]. However, no nationally endorsed frailty assessment guideline currently exists, and routine frailty screening in primary care, hospital admissions or surgical pre-assessment clinics is not yet standard practice.

Given Sri Lanka's resource constraints, simple tools such as PRISMA-7, the FRAIL scale or the Clinical Frailty Scale (CFS)—which rely on brief questionnaires or global clinical judgement—may be particularly suitable for systematic implementation, provided they are validated in local populations. The current literature demonstrates proof-of-concept that frailty can be measured in Sri Lankan settings, but scaling this up will require training, workflow integration and policy support.

Management of Frailty: Evidence and Sri Lankan Realities.

Frailty is dynamic and, especially in its early stages, potentially reversible or at least modifiable. International evidence supports multidomain interventions combining exercise, nutrition, medication review and comprehensive geriatric assessment (CGA) to slow or reverse frailty progression [1].

Exercise interventions, particularly programmes incorporating resistance training, balance exercises and aerobic activity, are among the most effective strategies for improving muscle strength, gait speed and overall physical function in frail older adults. While no large frailty-specific exercise trials have yet been published from Sri Lanka, local physiotherapy literature and falls-prevention research suggest that improving lower limb strength, flexibility and cardiovascular endurance can reduce the risk of falls in institutionalised elders [17]. These findings provide a strong rationale for integrating targeted exercise programmes into institutional and community care, even if initially on a small scale.

Nutritional interventions are equally important. Given the high prevalence of undernutrition and poor dietary variety among older Sri Lankans [11], interventions that ensure adequate caloric intake, increase high-quality protein consumption and address vitamin D and micronutrient deficiencies are likely to have a substantial impact on sarcopenia and frailty. However, access to dietitians and specialised nutrition services is limited outside tertiary hospitals, and financial constraints may limit older adults' ability to purchase protein-rich foods. Community-based nutrition programmes, social protection measures and caregiver education may therefore be necessary components of a national frailty strategy.

Medication review and deprescribing are particularly relevant in the context of multimorbidity and polypharmacy. While Sri Lankan data directly linking polypharmacy and frailty are limited, the KDU outpatient cohort shows high rates of multiple comorbidities treated with several medications [6]. Internationally, reducing inappropriate medications—especially psychotropics, anticholinergics and certain antihypertensives—has been associated with improved function and reduced falls, and similar approaches are likely beneficial in Sri Lanka. Deprescribing frameworks could be integrated into routine medical clinic reviews and discharge planning.

Comprehensive Geriatric Assessment (CGA), delivered by multidisciplinary teams, is

considered the gold standard for managing complex older adults, including those with frailty. Meta-analyses from high-income settings show that CGA can improve functional outcomes and reduce institutionalisation; however, in Sri Lanka, CGA is currently available only in a few specialised units and is not widely implemented [13]. Scaling up CGA-like approaches—perhaps through simplified, team-based assessments in medical wards and outpatient clinics—could provide a pragmatic path forward.

Finally, social and psychological interventions are critical but understudied. The evidence that frailty and pre-frailty correlate with poorer quality of life in rural Sri Lanka [5] highlights the need for interventions that address loneliness, depression, caregiver burden and social participation. Existing structures—such as village-level Elders' Committees, religious organisations and community centres—could be leveraged for group exercise programmes, health education, screening and peer support, though formal evaluations are lacking.

Health System and Policy Implications.

Existing demographic and epidemiological analyses stress that Sri Lanka's population ageing will profoundly affect health service demand, particularly for chronic disease management, rehabilitation and long-term care [20]. Yet frailty is not explicitly incorporated into current national policies on older people or NCDs. The National Policy for Older Persons and related strategic documents focus primarily on social security, welfare and broad health service access rather than on frailty-specific assessment and management.

Recent commentaries have argued that embedding healthy ageing and geriatric care within the national health agenda is urgent, given projections that one in four Sri Lankans will be over 60 by 2041 and the growing dominance of NCDs [3]. Frailty provides a practical organising principle for such efforts. It could be used to risk-stratify older adults in primary care, guide referral to specialised services, inform surgical and intensive care decision-making, and identify those who would benefit most from community support and rehabilitation.

Several system-level gaps are evident from the available literature: the very limited number of trained geriatricians; lack of dedicated geriatric units in most hospitals; absence of standardised frailty screening protocols; inadequate rehabilitation and long-term care infrastructure; and poor coordination between health and social sectors in supporting frail elders and their caregivers [3]. Addressing these issues will require a combination of workforce development (including training internists, family

physicians and nurses in geriatric principles), service reorganisation (such as geriatric-friendly outpatient clinics and wards), and integration of frailty assessment into existing programmes (for example, NCD clinics and elderly “healthy lifestyle” clinics).

Research Gaps and Future Directions.

Despite the importance of frailty, the Sri Lankan evidence base remains limited to a handful of community and clinic-based cross-sectional studies and a small number of related sarcopenia and falls investigations.

Key gaps include the lack of:

- Longitudinal cohort studies tracking transitions between robust, pre-frail and frail states and their consequences;
- Randomised or quasi-experimental evaluations of exercise, nutrition or CGA interventions targeted at frail or pre-frail older adults;
- National or provincial surveys incorporating frailty measures to inform planning;
- Validation studies of simple frailty screening tools (e.g. CFS, FRAIL, PRISMA-7) in diverse Sri Lankan settings;
- Analyses of frailty in high-risk clinical populations, such as patients undergoing major surgery, dialysis or oncology treatments.

Addressing these gaps will be essential for designing context-appropriate interventions and convincing policymakers to invest in frailty-oriented services. Existing cohorts, such as the Kegalle rural studies and emerging sarcopenia and diet-related cohorts [4], provide strong foundations that could be extended through follow-up and expansion.

Conclusion.

Frailty is already a common and clinically significant condition among older adults in Sri Lanka, with community-based prevalence estimates around 15% and substantially higher rates in outpatient and institutional settings [4]. It is closely associated with disability, reduced quality of life, multimorbidity, falls and increased health service use [15]. As the country moves rapidly towards a demographic profile where one in four citizens will be an older person [20], frailty will become increasingly central to clinical practice, service planning and public health.

The existing Sri Lankan literature, though limited, clearly demonstrates that frailty can be measured, that it has major functional and quality-of-life consequences, and that it is tightly bound up with sarcopenia, undernutrition, multimorbidity and social vulnerability [4]. International evidence offers a rich toolkit of interventions—exercise, nutrition, CGA,

deprescribing and falls prevention—that can be adapted to Sri Lanka’s context.

Moving forward, integrating frailty screening into primary care and hospital workflows, strengthening community-based rehabilitation and nutrition support, building geriatric capacity, and embedding frailty in national ageing and NCD strategies will be critical to ensuring that longer lives for Sri Lankans are also healthier, more functional and more dignified. The task now is to translate this growing evidence base—however modest—into coordinated action across clinical, community and policy domains.

References

1. To TL, Doan TN, Ho WC, Liao WC. Prevalence of Frailty among Community-Dwelling Older Adults in Asian Countries: A Systematic Review and Meta-Analysis. *Healthcare (Switzerland)* [Internet]. 2022 May 1 [cited 2025 Dec 3];10(5):895. Available from: <https://www.mdpi.com/2227-9032/10/5/895/htm>
2. Sunethra J Perera, Satharasinghe AJ, General D. Fertility and Nuptiality 2 Lead Author. [cited 2025 Dec 3]; Available from: <http://srilanka.unfpa.org>
3. Perera SR, Samarakoon YM. Addressing the Urgency for Healthy Ageing in Sri Lanka: Policy Dialogues. *WHO South East Asia J Public Health* [Internet]. 2025 Jan 1 [cited 2025 Dec 3];14(1):61–7. Available from: <https://pubmed.ncbi.nlm.nih.gov/40743422/>
4. Siriwardhana DD, Weerasinghe MC, Rait G, Falcaro M, Scholes S, Walters KR. Prevalence of frailty in rural community-dwelling older adults in Kegalle district of Sri Lanka: a population-based cross-sectional study. *BMJ Open* [Internet]. 2019 Jan 1 [cited 2025 Dec 3];9(1). Available from: <https://pubmed.ncbi.nlm.nih.gov/30782757/>
5. Siriwardhana DD, Weerasinghe MC, Rait G, Scholes S. The association between frailty and quality of life among rural community-dwelling older adults in Kegalle district of Sri Lanka: A cross-sectional study.
6. Jayasekera MMPT, Hulugalla CDK, Ramawickrama SM, Merusinghe AP, Marasinghe TD, Edirisinghe EMDT. Presentation to healthcare and the prevalence of frailty among older adults to the outpatient department of a tertiary care hospital in Sri Lanka. *Asian Journal of Internal Medicine*. 2023 Feb 7;2(1):15–20.
7. To TL, Doan TN, Ho WC, Liao WC. Prevalence of Frailty among Community-Dwelling Older Adults in Asian Countries: A Systematic Review and Meta-Analysis.

- Healthcare (Switzerland) [Internet]. 2022 May 1 [cited 2025 Dec 3];10(5):895. Available from: <https://www.mdpi.com/2227-9032/10/5/895/htm>
8. THE CEYLON MEDICAL JOURNAL. [cited 2025 Dec 3]; Available from: <http://doi.org/10.4038/cmj.v67i2.9627>
 9. Fazna R, Maithreepala SD, Mudiyansele SPK, Somaratne G. Association of Dietary Patterns and Sarcopenia in the Ageing Population in Polonnaruwa District, Sri Lanka: A Cross-Sectional Study. *Tropical Agricultural Research*. 2025 Jul 1;36(3):215–24.
 10. Fazna MRF, Somaratne G, Maithreepala SD, Mudiyansele SPK. Prevalence and Risk Factors of Sarcopenia among Institutionalized Elderly in Polonnaruwa, Sri Lanka: A Pilot Cross-sectional Study. *Asian Journal of Food Research and Nutrition* [Internet]. 2025 Jul 16 [cited 2025 Dec 3];4(3):993–1007. Available from: <https://journalajfrn.com/index.php/AJFRN/article/view/305>
 11. Vijewardane SC, Balasuriya A, Myint PK, Johnstone AM. Determinants of Undernutrition and Associated Factors of Low Muscle Mass and High Fat Mass among Older Men and Women in the Colombo District of Sri Lanka. *Geriatrics (Switzerland)* [Internet]. 2022 Apr 1 [cited 2025 Dec 3];7(2):26. Available from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC8938783/>
 12. Vijewardane SC, Balasuriya A, Johnstone AM, Myint PK. Impact of age on the prevalence of poor-quality dietary variety, associated lifestyle factors, and body composition profile (low body muscle mass and high body fat mass) in older people residing in Colombo district, Sri Lanka. *Heliyon*. 2024 Mar 15;10(5):e27064.
 13. Perera SR, Samarakoon YM. Addressing the Urgency for Healthy Aging in Sri Lanka: Policy Dialogues. *WHO South East Asia J Public Health* [Internet]. 2025 Jan 1 [cited 2025 Dec 3];14(1):61–7. Available from: <https://pubmed.ncbi.nlm.nih.gov/40743422/>
 14. Liyanage I, Liyanage E, Gunawardhana K, Deepika S, Nanayakkara I. Epidemiology of falls and fall prevention among older adults in Sri Lanka: a scoping review. *Physiotherapy Quarterly* [Internet]. 2025 Oct 1 [cited 2025 Dec 3];2025(4):1–8. Available from: <https://physioquart.awf.wroc.pl/Epidemiology-of-falls-and-fall-prevention-among-older-adults-in-Sri-Lanka-na-scoping,195205,0,2.html>
 15. Siriwardhana DD, Weerasinghe MC, Rait G, Scholes S, Walters KR. Association between frailty and disability among rural community-dwelling older adults in Sri Lanka: a cross-sectional study. *BMJ Open* [Internet]. 2020 Mar 1 [cited 2025 Dec 3];10(3):e034189. Available from: <https://bmjopen.bmj.com/content/10/3/e034189>
 16. Gamage N, Rathnayake N, Alwis G. Prevalence and Associated Risk Factors of Falls among Rural Community-Dwelling Older People: A Cross-Sectional Study from Southern Sri Lanka. *Curr Gerontol Geriatr Res* [Internet]. 2019 [cited 2025 Dec 3];2019. Available from: <https://pubmed.ncbi.nlm.nih.gov/31275369/>
 17. Ihalage WISM, Wijebandara VRCS, Wickramakumari DGWS, Wickramasingha WMBD, Sampath RMRK, Manchanayake MMJP, et al. Prevalence of falls and comparison of health-related physical fitness factors between different faller categories among institutionalized older adults in Kandy District of Sri Lanka. *PLoS One* [Internet]. 2024 Feb 1 [cited 2025 Dec 3];19(2):e0297946. Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0297946>
 18. Wijeratne D, Maduwage S, Siritunga S, Karunaratna B. *Journal of the College of Community Physicians of Sri Lanka Original Research*. [cited 2025 Dec 3]; Available from: <https://doi.org/10.4038/jccpsl.v31i2.8782>
 19. Rathnayake N, Abeygunasekara T, Liyanage G, Subasinghe S, De Zoysa W, Palangasinghe D, et al. Cross-cultural adaptation and validation of the Sinhala version of SarQoL® for assessing quality of life in older women with sarcopenia. *BMC Geriatr* [Internet]. 2025 Dec 1 [cited 2025 Dec 3];25(1):465-. Available from: <https://link.springer.com/article/10.1186/s12877-025-06137-8>
 20. Lanka S, Review S, De Silva WI, De Silva R. Growth and Structural Changes of Sri Lankan Population During Coming Decades with Special Reference to Youth and Elderly. 2023 [cited 2025 Dec 3];2. Available from: www.statistics.gov.lk