

Contributory factors to frailty among prisoners in Nigeria: a scoping review of the call for policy reforms and strategic public health interventions

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Abstract

Frailty is an age-related syndrome characterized by reduced physiological reserve and increased vulnerability to adverse health outcomes. Older prisoners are at heightened risk of frailty due to the cumulative effects of chronic disease, poor living conditions, and limited healthcare access. However, evidence on factors contributing to frailty among prisoners in Nigeria remains fragmented. This scoping review aimed to map and synthesize available evidence on contributory factors to frailty among prisoners in Nigeria. A scoping review was conducted following Arksey and O'Malley's framework and reported according to PRISMA-ScR guidelines. Searches were performed in PubMed, Scopus, ScienceDirect, Frontiers, BMC, and African Journals Online, supplemented by grey literature searches. Eligible studies were conducted in Nigerian prison settings and reported findings related to older inmates or frailty-related domains. Data were extracted, critically appraised using Joanna Briggs Institute tools, and synthesized narratively. Six studies met the inclusion criteria. Five interconnected themes were identified: nutritional deficiencies and sarcopenic risk, physical inactivity and deconditioning, multimorbidity and unmanaged chronic disease, mental health burden and psychosocial isolation, and systemic and environmental barriers to care. Findings showed widespread food inadequacy, poor healthcare access, depression, chronic disease burden, declining physical fitness, and overcrowded living conditions. No included study used a validated frailty assessment instrument, highlighting a significant evidence gap. Frailty among Nigerian prisoners is driven by modifiable institutional and health-system factors. Integrating frailty screening, nutritional support, physical activity programs, mental health services, and geriatric-sensitive correctional policies may reduce health inequities and improve outcomes for older incarcerated adults.

Key words: frailty, prisoners, contributory factors, Nigeria, policy reforms, strategic interventions, public health interventions.

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Introduction

Globally, prison populations are aging rapidly due to longer sentences, aging societies, and punitive policies enacted decades ago.¹ In the United States, individuals aged 55+ now constitute over 11% of state and federal prisoners, a 280% increase since 1999, with incarceration itself accelerating biological aging.¹ Older prisoners exhibit earlier onset of geriatric syndromes, including frailty, a state of diminished reserve across multiple systems that heightens vulnerability to falls, hospitalization, and death.²⁻⁴ Standard definitions, such as the Fried phenotype (unintentional weight loss, exhaustion, weakness, slow walking speed, low physical activity), or deficit-accumulation models, show frailty prevalence in prisons reaching 40-50% among those 50+, far exceeding community rates of 8-15% for similar ages.^{2,5} Contributing factors include chronic disease multimorbidity (hypertension, cardiovascular disease, arthritis, respiratory illness), nutritional deficits, physical inactivity, solitary confinement, limited healthcare access, and cumulative stress from institutional regimes.^{5,6} Systematic reviews confirm

older offenders carry significantly elevated risks of hypertension, cardiovascular disease, respiratory conditions, and arthritis compared with community-dwelling older adults.⁵

In high-income countries, these realities have prompted policy responses, specialized geriatric units, frailty screening, compassionate release for terminally ill or frail inmates, and "prison nursing homes", though implementation remains uneven and costly¹. In low- and middle-income countries, particularly sub-Saharan Africa, the phenomenon is less documented but potentially more severe.⁵ Overcrowding exceeds 200% capacity in many facilities, sanitation is inadequate, diets lack essential nutrients, and specialist geriatric or chronic-disease care is virtually absent.^{3,7,8} Nigeria exemplifies these challenges.⁹ The Nigerian Correctional Service manages over 70,000 inmates in facilities built for far fewer, with elderly prisoners (50+) increasing due to prolonged awaiting-trial detention and life sentences.⁹ Prison conditions, overcrowded cells with poor ventilation, inadequate bedding, contaminated water, monotonous carbohydrate-heavy diets, and minimal medical staff, mirror and amplify community-level vulnerabilities

such as poverty-related malnutrition and infectious disease burden.^{10,11}

Studies on aged inmates consistently describe accelerated decline: weight loss, muscle wasting, chronic pain, depression, and untreated comorbidities (hypertension, tuberculosis, arthritis).^{10–12} These mirror frailty domains but are framed as “plights” rather than geriatric syndromes.¹⁰ Locally, Nigeria’s prison system has undergone nominal reform via the Nigerian Correctional Service Act 2019, which emphasizes rehabilitation and inmate welfare.^{9,13,14} Implementation lags: geriatric-specific provisions are absent.⁹ Overcrowding persists, awaiting-trial inmates comprise approximately 65% of the population, and healthcare budgets remain insufficient.⁹ Older inmates face compounded risks: pre-incarceration comorbidities exacerbated by incarceration, social isolation from family, and stigma that discourages health-seeking.^{4,10,15} Without targeted data on frailty prevalence or contributors, policymakers lack evidence for reforms.^{1,14} This scoping review addresses the gap by synthesizing available empirical evidence on factors driving frailty-like decline among Nigerian prisoners. By mapping nutritional, physical, medical, mental, and systemic contributors, it provides a foundation for policy reforms (*e.g.*, frailty screening protocols, nutritional standards, compassionate release) and strategic public health interventions (*e.g.*, integrated geriatric-prison partnerships). The review underscores that frailty in Nigerian prisons is not inevitable but a preventable consequence of policy neglect, demanding urgent, evidence-based action to align with global standards and constitutional rights to health and dignity.

Objectives of the study

This scoping review addresses the gap by synthesizing available empirical evidence on factors driving frailty-like decline among Nigerian prisoners. Specific objectives include: i) to identify and synthesize empirical evidence on factors contributing to frailty (or frailty-equivalent physical/functional decline) among prisoners in Nigeria; ii) to map study characteristics, including design, settings, and populations; iii) to extract key themes related to nutritional, physical, medical, psychological, and institutional contributors; iv) to evaluate gaps in the literature and propose policy reforms and public health interventions tailored to the Nigerian context.

Methods

Study design

This scoping review was conducted in accordance with Arksey and O’Malley’s (2005) five-stage framework and reported following

the PRISMA-ScR guidelines.^{16,17} A scoping approach was adopted to map the available evidence on frailty among prisoners in Nigeria, particularly given the emerging and limited nature of primary research in this population.

Search strategy

A systematic search was conducted in PubMed, Scopus, ScienceDirect, Frontiers, BMC journals, and African Journals Online (AJOL) for studies published between January 2010 and March 2026. The final search was completed in March 2026. The search strategy combined controlled vocabulary and free-text terms using Boolean operators: (“frailty” OR “frail” OR “physical fitness” OR “sarcopenia” OR “accelerated aging” OR “multimorbidity”) AND (“prison” OR “inmate” OR “correctional” OR “incarcerated”) AND (“Nigeria” OR “Nigerian prison”). To capture geriatric-relevant outcomes, additional terms were included: (“elderly” OR “aged” OR “older adult” OR “geriatric”) AND (“health” OR “nutrition” OR “depression” OR “quality of life”). Reference lists of eligible studies and relevant grey literature, including Nigerian Correctional Service reports and World Health Organization Africa prison health documents, were hand-searched. No language restrictions were applied, although eligible studies were predominantly published in English.

Eligibility criteria

Inclusion criteria

Studies were included if they were empirical (quantitative, qualitative, or mixed-methods); conducted in Nigerian prison settings; inmates aged ≥ 50 years or reported age-disaggregated data relevant to frailty domains (*e.g.*, physical function, nutrition, comorbidity, or functional decline); published between January 2010 and March 2026.

Exclusion criteria

Studies were excluded if they were non-empirical (commentaries or editorials), lacked Nigeria-specific data, focused exclusively on general inmate populations without older-adult stratification, or reported intervention outcomes without baseline frailty-related measures, and published before January 2010. The inclusion and exclusion criteria of the included studies are presented in Table 1.

Study selection

Two independent reviewers screened titles and abstracts, followed by full-text review of eligible studies. Discrepancies were resolved through discussion and consensus.

Table 1. Inclusion and exclusion criteria for the review.

Items	Inclusion criteria	Exclusion criteria
Population	Prisoners in Nigeria	Prisoners outside Nigeria
Exposure	Physical function, nutrition, comorbidities, or functional decline	Other exposure different from physical function, nutrition, comorbidities, or functional decline
Outcome	Frailty	Other outcomes different from frailty
Study design	Cohort, Cross-sectional, and Case-Control studies	All other study designs
Language	English	All other languages
Time/year	Article published from January 2010 – March 2026	Articles published before January 2010
Articles	Full-text peer reviewed articles	Not full-text peer-reviewed (<i>e.g.</i> , Abstracts only, unpublished reports)
Geographical location/settings	Nigeria	Location different from Nigeria

Table 2. Risk of bias and quality assessment.

Authors (year)	Risk of bias	Quality assessment	Comments
Aborisade <i>et al.</i> (2016) ¹⁰	Moderate	Moderate	Small sample; strong contextual insight but limited transferability; no triangulated quantitative measures
Ojo and Okunola (2014) ¹¹	Moderate	Moderate	Adequate sample; self-reported health outcomes; limited control of confounders
Majekodunmi <i>et al.</i> (2017) ¹²	Moderate	Moderate	Good outcome focus but single-site design; limited frailty-specific measurement
Adekanmbi <i>et al.</i> (2025) ¹⁸	Moderate	Moderate	Large sample; strong nutritional analysis but frailty not directly measured
Olaitan <i>et al.</i> (2010) ¹⁹	Low	High	Large sample; objective physical measures strengthen validity but limited geriatric focus
Goson (2013) ²⁰	Moderate	Moderate	Multi-domain outcomes; lacks longitudinal follow-up and frailty-specific tools

Data extraction and data synthesis

Data were extracted using a standardized form capturing author(s), year of publication, study objectives, design, sample size, study setting, and key findings. A narrative synthesis approach was used. Findings were organized into inductively derived thematic categories. Quantitative findings were summarized descriptively, while qualitative findings were thematically integrated across studies.

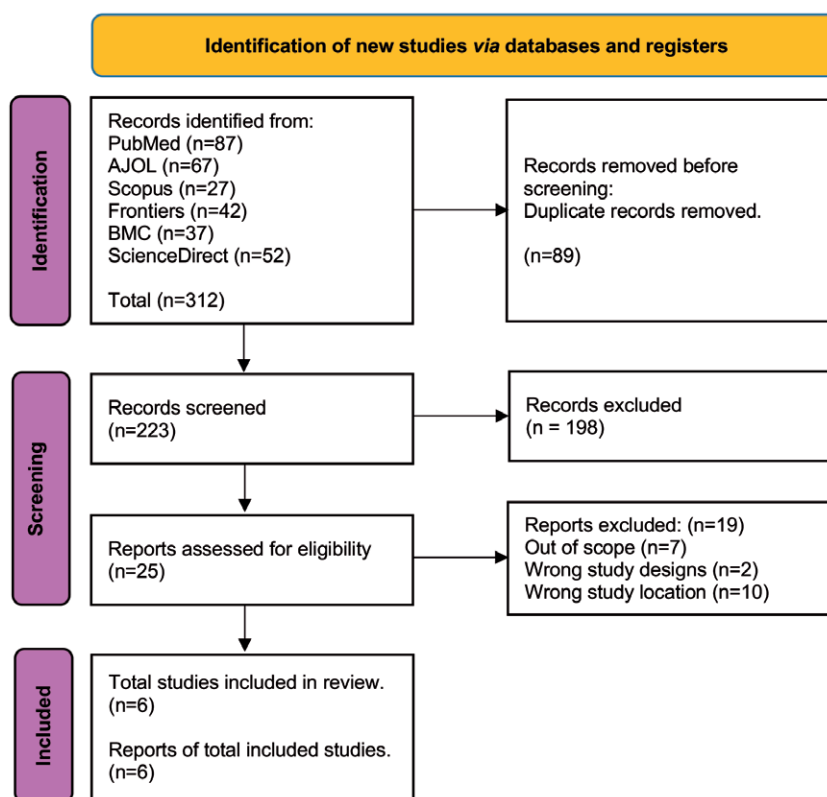
Risk of bias and quality assessment

Methodological quality and risk of bias were assessed using the Joanna Briggs Institute (JBI) critical appraisal tools appropriate for each study design (cross-sectional and qualitative studies). Each study was evaluated for sampling adequacy, clarity of inclusion cri-

teria, measurement validity, confounding consideration, and analytical rigor. Overall, most studies demonstrated moderate methodological quality, with limitations primarily related to small sample sizes and single-site designs. The risk of bias and quality assessment of the included studies are presented in Table 2.

Screening procedure

The study selection process followed PRISMA guidelines and is summarized as follows: 312 records were identified, 89 duplicates were removed, and 223 records were screened. Of these, 198 were excluded at the title/abstract stage. Full-text assessment was conducted for 25 studies, with 19 excluded based on eligibility criteria. Ultimately, 6 studies were included in the final synthesis. The PRISMA flow diagram is presented in Figure 1.

**Figure 1.** Diagram of the PRISMA 2020 Process for Systematic Reviews and Meta-Analyses.

Results

Study characteristics

Six studies met the inclusion criteria.^{10–12,18–20} All were conducted in Nigeria between January 2010 and December 2025. Five were cross-sectional studies, and one was qualitative. Sample sizes ranged

from 27 to 300 participants, reflecting the limited availability of research on older prisoners. Studies were conducted in prisons located in Ogun, Osun, Kano, and one North-Central state. None of the studies used validated frailty instruments (*e.g.*, Fried phenotype or Frailty Index). Common methodological limitations included small sample sizes, single-site designs, and reliance on self-reported data. Table 3 summarizes the included studies.

Table 3. Summary of included studies.

Authors (year)	Objectives of the study	Study design	Sample size and study setting	Key findings	Conclusions
Aborisade <i>et al.</i> (2016) ¹⁰	To explore health status, well-being, and health-promoting behaviours of elderly inmates	Qualitative exploratory (in-depth interviews + key informants)	27 elderly inmates + prison officials, two prisons in Ogun State, Nigeria	Low health-seeking due to fear/stigma; poor diet, overcrowding, lack of exercise/ventilation, violence, and comorbidities (TB, hypertension) threaten well-being	Nigerian prisons lack capacity for geriatric care; health-promoting behaviours severely constrained
Ojo and Okunola (2014) ¹¹	To examine plights and health challenges of aged inmates	Cross-sectional survey	93 elderly inmates (aged 50+), two prisons in Ogun State, Nigeria	95.7% reported inadequate food, 75.3% poor healthcare, high rates of hypertension, TB, arthritis; poor bedding and psychological support prevalent	Prisons fail to meet basic needs of elderly inmates, accelerating health decline; urgent reforms needed
Majekodunmi <i>et al.</i> (2017) ¹²	To determine prevalence and pattern of depression and associated physical comorbidities	Cross-sectional descriptive	Elderly male inmates (aged 50+) across one state prison, Nigeria	Depression prevalence 30–35%; ~significant co-occurrence with hypertension, arthritis, respiratory illness; awaiting-trial status increased risk	High psychiatric and physical morbidity in elderly inmates; integrated mental-physical care essential
Adekanmbi <i>et al.</i> (2025) ¹⁸	To assess dietary patterns, nutrient adequacy, and influencing factors	Cross-sectional	290 inmates (including older adults), Osun State prisons, Nigeria	Severe deficiencies: fibre 99.7%, vitamin C 100%, calcium 96.9%; longer incarceration and prison-food reliance worsened intake; older inmates disproportionately affected	Prison diets promote frailty risk through malnutrition; nutritional reform and supplementation urgently required
Olaitan <i>et al.</i> (2010) ¹⁹	To evaluate correlates of selected physical fitness indices with duration of incarceration	Cross-sectional survey	300 male inmates (age-stratified), selected prisons in Kano metropolis, Nigeria	Longer incarceration associated with significant declines in cardiovascular endurance, muscular strength, flexibility, and body composition; older inmates showed steeper losses	Prolonged incarceration negatively impacts physical fitness; exercise programmes are needed to mitigate deconditioning
Goson (2013) ²⁰	To assess health-related quality of life (HRQoL) and associated factors among older prisoners	Cross-sectional survey	96 older male inmates (mean age 52.8 years), multiple Nigerian prisons	HRQoL impaired by chronic diseases (arthritis, memory deficits), low education, and poor environmental conditions; physical and psychological domains most affected	Older prisoners experience compromised HRQoL; targeted interventions required

HRQoL, health-related quality of life; TB, tuberculosis.

Quality appraisal of included studies

The included studies demonstrated variability in methodological rigor, study design, and measurement approaches. Most were cross-sectional in nature, with only one qualitative study, reflecting the exploratory stage of research on frailty and ageing in Nigerian prison populations. Geographically, studies were concentrated in a limited number of Nigerian states (notably Ogun, Osun, and Kano), restricting national representativeness. Sampling approaches were largely convenience-based, increasing susceptibility to selection bias. A major methodological gap across studies was the absence of validated frailty assessment tools such as the Fried Frailty Phenotype or Frailty Index. Instead, studies relied on proxy indicators including nutritional status, physical fitness indices, depression scales, and self-reported health conditions. Despite these limitations, several studies demonstrated methodological strengths, particularly those using objective measures of physical fitness and dietary intake. Overall, the evidence base was assessed as moderate quality, with consistent gaps in standardization, longitudinal design, and geriatric-specific measurement.

Thematic review/key themes

Five interrelated themes explaining contributory factors to frailty among Nigerian prisoners were identified. These themes reflect consistent patterns across included studies and align with established frailty frameworks, while highlighting context-specific institutional constraints.

Nutritional deficiencies and sarcopenic risk

Severe dietary inadequacy was consistently reported.¹⁸ In Osun State prisons, inmates exhibited high levels of fibre deficiency, protein inadequacy, vitamin C and iodine shortfalls, and calcium deficiency.¹⁸ Diets were predominantly carbohydrate-based with minimal micronutrient diversity, contributing to weight loss and muscle wasting, core features of frailty.¹⁸ Longer incarceration was associated with poorer nutritional status.¹⁸ Earlier studies in Ogun State reported that up to 95.7% of elderly inmates experienced inadequate food intake, with visible signs of emaciation and weakness.^{10,11} These conditions promote sarcopenia, immune suppression, and increased infection susceptibility.¹⁸

Physical inactivity, deconditioning, and incarceration duration

Extended incarceration was associated with progressive physical deconditioning.¹⁹ In Kano prisons, longer duration of incarceration was inversely associated with muscular strength, flexibility, and cardiorespiratory fitness.^{12,19} Severe overcrowding and lack of structured physical activity further restricted mobility, with cells designed for 20 occupants housing over 100 inmates.^{10,19} Qualitative findings described functional decline in older inmates, including difficulty with basic mobility tasks such as standing and walking.¹⁰

Multimorbidity and unmanaged chronic disease

High burdens of hypertension, arthritis, respiratory disease, and tuberculosis were reported among older inmates.^{12,20} These conditions were frequently unmanaged due to inadequate healthcare access and limited medical staffing, often with one physician per several hundred inmates.¹⁰ Multimorbidity was exacerbated by prison environmental conditions such as poor ventilation and damp

living spaces.¹² Lack of geriatric care and polypharmacy management further contributed to functional decline.¹⁰

Mental health burden and psychosocial isolation

Depression and anxiety were prevalent among older inmates, with reported rates ranging from 30% to 46%.^{11,12,20} These conditions were associated with physical decline, reduced quality of life, and cognitive impairment.^{12,20} Key drivers included prolonged pre-trial detention, family separation, stigma, and limited psychosocial support.¹⁰ Social isolation and absence of age-sensitive housing further worsened psychological distress.²⁰

Systemic and environmental barriers to care

Overcrowding, poor sanitation, inadequate nutrition, and lack of age-specific policies constituted the overarching structural drivers of frailty.¹⁰ Elderly inmates frequently lacked basic accommodations such as beds, assistive devices, or adequate clothing.¹⁰ Healthcare delivery was largely reactive rather than preventive, with limited access to specialist care and delayed referrals.¹¹ These systemic deficiencies collectively accelerated frailty progression across physical, psychological, and functional domains.

Discussion

Comparison with global evidence

Findings align with international evidence on accelerated aging in prison populations, but suggest a more severe burden in Nigerian correctional settings.^{5,21–23} Studies from high-income countries report increased frailty and multimorbidity among older prisoners, particularly those aged ≥ 50 years.^{4,5,24–26} For example, UK evidence indicates a 44% frailty risk among hospitalized male prisoners aged 50+.^{1,27} In contrast, Nigerian studies did not directly measure frailty using validated tools, yet consistently demonstrated proxies such as severe malnutrition, functional decline, and multimorbidity, suggesting potentially higher unmet need.¹ The absence of standardized frailty assessment in Nigerian prisons remains a major methodological gap that limits direct epidemiological comparison.²

Policy and legislative gaps

Although the Nigerian Correctional Service Act (2019) emphasizes rehabilitation, it does not include specific provisions for geriatric or frailty care.^{9,28} Unlike jurisdictions such as the UK and USA, where structured screening and age-sensitive prison healthcare pathways exist, Nigeria lacks formal frailty assessment protocols for older inmates.¹ Similarly, compassionate release mechanisms for frail or terminally ill prisoners remain inconsistently applied.⁹ Persistent overcrowding further undermines health protection despite statutory limits, exacerbating functional decline and limiting implementation of age-sensitive care.⁹

Public health and health system implications

The findings position prisons as critical but underutilized entry points for geriatric public health intervention. Simple, low-cost screening approaches (e.g., grip strength testing or the FRAIL scale) could support early identification of high-risk inmates.² Evidence supports the feasibility of integrating structured nutrition support, physical activity programmes, and mental health services within existing prison health systems.⁷ Strengthening linkage

between prison health services and community-based geriatric care would be particularly important for post-release continuity, reducing avoidable morbidity and mortality.¹ Given the high burden of preventable functional decline, even modest interventions are likely to be cost-saving at system level.⁵

Equity and human rights considerations

Frailty in prison disproportionately affects individuals with pre-existing socioeconomic disadvantage, reinforcing health inequities accumulated across the life course.¹⁰ The conditions identified, including malnutrition, inadequate healthcare access, and environmental deprivation, raise concerns under constitutional guarantees of dignity and health (Section 17, 1999 Constitution) and international minimum standards for prisoner treatment (Mandela Rules).^{29,30} Although the prison population is predominantly male, female older inmates face additional vulnerabilities, including reproductive health neglect and heightened social isolation.^{20,31-37}

Implementation challenges and feasibility

Resource constraints represent a major barrier to implementation; however, the identified interventions are low-cost and scalable. Frailty screening tools require minimal training and infrastructure and can be integrated into routine intake assessments.¹ Pilot implementation in selected prisons could generate locally relevant evidence for scale-up and policy adoption.^{18,32-37} Staff training in basic geriatric assessment and task-shifting approaches may further enhance feasibility without requiring substantial workforce expansion.

Strengths and limitations of the study

Strengths

This scoping review provides one of the first systematic syntheses of evidence on contributory factors to frailty among prisoners in Nigeria, addressing a neglected area within correctional and public health research. The use of Arksey and O'Malley's framework and PRISMA-ScR reporting standards ensured methodological rigor and transparency. Inclusion of both quantitative and qualitative studies enabled a multidimensional understanding of frailty, capturing both measurable risk factors and contextual determinants such as lived experiences of incarceration. The review also highlights critical gaps in evidence, particularly the absence of validated frailty assessment tools in Nigerian prison research, thereby providing a clear agenda for future studies and policy development.

Limitations

The evidence base remains limited, with only six eligible studies identified, restricting generalizability and synthesis depth. Most included studies were cross-sectional, limiting causal inference regarding identified risk factors. Substantial heterogeneity in study design, sampling, and outcome measures prevented quantitative synthesis. Additionally, variation in geographic coverage limits national representativeness, as studies were concentrated in a few states. None of the included studies used validated frailty instruments, which reduces comparability with global evidence. Publication bias and exclusion of unpublished institutional data may also have influenced findings. Despite these limitations, the convergence of findings across studies strengthens confidence in the identified patterns.

Conclusions

Frailty among prisoners in Nigeria emerges as a multidimensional and largely preventable condition driven by modifiable institutional and systemic factors, including malnutrition, physical inactivity, multimorbidity, psychosocial deprivation, and environmental neglect. Although evidence remains limited, the included studies consistently demonstrate accelerated functional decline among incarcerated older adults. The absence of formal screening systems and geriatric-specific correctional policies represents a critical service gap that contributes to preventable morbidity and mortality. Addressing frailty in this population is therefore not only a clinical priority but also a public health and human rights imperative.

Recommendations

Based on the findings of this study, the following recommendations are suggested.

1. Introduce frailty screening (e.g., FRAIL scale or grip strength) at prison intake for inmates aged ≥ 45 years.
2. Implement age-appropriate nutritional standards with micronutrient supplementation.
3. Establish structured low-intensity physical activity programs for older inmates.
4. Integrate mental health screening into routine prison healthcare services.
5. Amend correctional legislation to include frailty-based compassionate release and geriatric care provisions.
6. Train correctional health staff in geriatric syndromes and frailty recognition.
7. Develop prison-community health linkages for continuity of care after release.
8. Support operational research to validate frailty tools and evaluate interventions in Nigerian prisons.

Implications of the study

Public health implications

Findings highlight prisons as amplifiers of frailty and health inequities. Integrating geriatric screening and nutrition into existing prison health services could avert thousands of disability-adjusted life years annually. National policy must treat correctional health as a core public health domain, aligning with Sustainable Development Goal 3 and Universal Health Coverage.

Practice implications

Correctional healthcare providers should adopt frailty assessment as a standard intake procedure. Multidisciplinary teams (dietitians, physiotherapists, mental health officers) can deliver targeted interventions using existing staff, improving functional status and reducing acute care transfers.

Research implications

Urgent need for prospective studies measuring frailty prevalence with validated tools and testing interventions (nutrition + exercise) via randomized controlled trials. Longitudinal cohort designs tracking pre- and post-release trajectories will quantify incarceration's causal contribution to frailty.

Policy implications

Legislators must embed geriatric provisions in correctional law and allocate ring-fenced funding. Inter-ministerial collaboration (Health, Interior, Justice) is required to operationalize recommendations.

Ethical and human rights implications

Addressing frailty upholds constitutional rights to dignity and health, preventing cruel and degrading treatment of vulnerable elders. Failure to act constitutes systemic ageism within the justice system.

Future directions

Future research should prioritize validation of culturally appropriate frailty instruments in Nigerian correctional settings, alongside longitudinal studies assessing causal pathways between incarceration and functional decline. Cluster-randomized trials evaluating combined nutrition, exercise, and psychosocial interventions are also needed. In addition, integrating frailty indicators into routine correctional health surveillance systems would support national-level monitoring and policy planning.

References

- Williams BA, Goodwin JS, Baillargeon J, et al. Addressing the aging crisis in U.S. criminal justice health care. *J Am Geriatr Soc* 2012;60:1150-6.
- Fried LP, Tangen CM, Walston J, et al. Frailty in older adults: evidence for a phenotype. *J Gerontol A Biol Sci Med Sci* 2001;56:M146-56.
- Bedard R, Metzger L, Williams B. Ageing prisoners: an introduction to geriatric health-care challenges in correctional facilities. *Int Rev Red Cross* 2016;98:917-39.
- Novisky MA, Prost SG, Fleury-Steiner B, Testa A. Linkages between incarceration and health for older adults. *Health Justice* 2025;12:23.
- Solares C, Dobrosavljevic M, Larsson H, et al. The mental and physical health of older offenders: a systematic review and meta-analysis. *Neurosci Biobehav Rev* 2020;118:440-50.
- Akinlotan JV, Nupo SS, Olorode OO. Assessment of nutritional status of inmates in Oyo State, Nigeria. *Cent Res J Biol Sci* 2010:68-75.
- World Health Organization Regional Office for Europe. Prisons and health. 2014. Available from: <https://iris.who.int/bitstream/handle/10665/128603/9789289050593-eng.pdf>
- Aluko OO, Esan OT, Agboola UA. How secured and safe are the sanitation and hygiene services in a maximum-security correctional facility in Southwest Nigeria. *Int J Environ Health Res* 2022;32:2200-17.
- Federal Republic of Nigeria. Nigerian Correctional Service Act, 2019. Available from: <https://placng.org/i/wp-content/uploads/2019/12/Nigerian-Correctional-Service-Act-2019.pdf>
- Aborisade RA, Omotayo TO, Oshileye TA. Elders in prison: their health status, well-being and health-promoting behaviours in Nigerian prisons. *Niger J Soc Stud* 2016;19:86-107.
- Ojo MOD, Okunola RA. The plights of the aged inmates in Nigerian prison system: a survey of two prisons in Ogun State, Nigeria. *Bangladesh e-J Sociol* 2014;11:54-73.
- Majekodunmi OE, Obadeji A, Oluwale LO, Oyelami RO. Depression and associated physical co-morbidities in elderly prison inmates. *Int J Ment Health* 2017;46:269-83.
- Tanimu B. Nigerian convicts and prison rehabilitation ideals. *J Sustain Dev Afr* 2010;12:140-52.
- Opafunso ZO, Adepoju OO. Prison reforms system and inmates' welfare in Nigeria. *Arts Soc Sci J* 2016;7:1-6.
- Orjiakor CT, Ugwu DI, Ezeanya PC. Prolonged incarceration and prisoners' wellbeing: livid experiences of awaiting trial/pre-trial/remand prisoners in Nigeria. *Int J Qual Stud Health Well-being* 2017;12:1395677.
- Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005;8:19-32.
- Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med* 2018;169:467-73.
- Adekanmbi TE, Adekanmbi AF, Oluwale LO, Adeleke OR. Dietary patterns, nutrient adequacy and influencing factors among inmates in Osun State, Nigeria. *BMJ Public Health* 2025;3:e001084.
- Olaitan SA, Shmaila H, Sikiru L, Lawal IU. Correlates of selected indices of physical fitness and duration of incarceration among inmates in some selected Nigeria prisons. *Ethiop J Health Sci* 2010;20:107-13.
- Goson PC. Health related quality of life of older prisoners in Nigerian prisons master's thesis. 2013. Available from: <https://www.um.edu.mt/library/oar/handle/123456789/76755>
- Ibraheem AT, Ishola TA, Jembi RO. Food consumption pattern and nutritional status of confined people in selected rural prisons during COVID-19. *Int J Food Agric Sci* 2022;10:1-14.
- Nwefoh E, Aguocha CM, Ryan G, et al. Depression and experience of incarceration in North Central Nigeria: a situation analysis at Makurdi medium security prison. *Pan Afr Med J* 2020;14:76.
- Piwuna CG, Piwuna T, Dami N, et al. Depression among older adult prisoners at the Jos Central Prison, North Central Nigeria. *J Biomed Res Clin Pract* 2019;2:167-71.
- Oguntayo R, Ogundipe E, Tomolaju OP, et al. Influence of anxiety and depression on quality of life among prison inmates in Ilorin, Nigeria. *Kasetsart J Soc Sci* 2020;41:570-5.
- Adefisoye ID. Assessment of quality of life of inmates in Nigerian correctional centres: a systematic review. *Afr J Sociol Psychol Rural Stud* 2024;4:75-97.
- Otuu FC, Shu EN. Prevalent diseases among inmates in three federal prisons in South-East geopolitical zone of Nigeria. *J Environ Sci Public Health* 2019;3:1-12.
- Nuffield Trust. Living (and dying) as an older person in prison. 2023. Available from: <https://www.nuffieldtrust.org.uk/research/living-and-dying-as-an-older-person-in-prison>
- Zubairu N. The risk-need-responsivity model on inmate rehabilitation: a lesson from Nigeria. *J Contemporary Sociological Issues* 2023;3.
- Amnesty International. Nigeria—prisoners' rights systematically flouted (AFR 44/001/2008). 2008. Available from: <https://www.amnesty.org/es/wp-content/uploads/2021/06/afr440012008eng.pdf>
- Nigerian National Human Rights Commission. Prison report 2018. Available from: <https://www.nigeriarights.gov.ng/files/publications/PRISON-REPORT-min.pdf>
- Olugbenga-Bello AI, Adeoye OA, Osagbemi KG. Assessment of the reproductive health status of adult prison inmates in Osun State, Nigeria. *Int J Reprod Med* 2013;2013:451460.

32. Mulligan LD, Buck D, Ghafur F, Southworth J. Addressing the mental health needs of older people in prison: development of an initial programme theory. *Ment Health Sci* 2025;3:105.
33. Maity K, Majumdar V, Patra S, Anand A. Cognitive dysfunction—an overlooked avenue to promote health in incarcerated elderly population through yoga. *Front Hum Neurosci* 2025;19: 1553845.
34. Megari K, Argyriadou E, Yotsidi V. Overall quality of life and emotional regulation among inmates: a narrative review. *Psychiatry Clin Neurosci* 2026;80:254-87.
35. Oninla OA, Onayemi O. Skin infections and infestations in prison inmates. *Int J Dermatol* 2012;51:178-81.
36. Uche IB, Okafor AE, Uche OA. Graying incarcerated persons and education programmes in Nigerian correctional centre. *J Prison Educ Res* 2024;8:3.
37. Numa EL. Welfare in area of rehabilitation in Nigerian correctional centers: a study of Ikoyi Custodial Center. *Afr J Criminol Justice Stud* 2025;14:2.

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