Strategies for Osteoporosis Prevention in Primary Health Care: An Integrative Literature Review

Estratégias para Prevenção da Osteoporose na Atenção Primária à Saúde: Uma Revisão Integrativa de Literatura

Estrategias para la Prevención de la Osteoporosis en la Atención Primaria de Salud: Una Revisión Integradora de la Literatura

RESUMO

Objetivo: analisar as estratégias desenvolvidas na atenção primária à saúde que contribuem para a prevenção da osteoporose e redução do risco de fraturas em adultos e idosos. **Método:** revisão integrativa da literatura, realizada na base de dados PubMed/MEDLINE, considerando publicações entre 2021 e 2026. Após aplicação dos critérios de seleção, sete estudos foram avaliados, sendo quatro excluídos por não atenderem ao escopo, resultando em três artigos na amostra final. **Resultado:** as principais estratégias identificadas foram o reconhecimento precoce de fatores de risco, o rastreamento da saúde óssea, o diagnóstico e tratamento oportunos, o acompanhamento da adesão terapêutica e intervenções preventivas para redução da ocorrência e recorrência de fraturas. **Conclusão:** a atenção primária à saúde é fundamental na prevenção da osteoporose e das fraturas, especialmente por meio da identificação precoce do risco, acompanhamento contínuo e implementação de medidas preventivas individualizadas.

DESCRITORES: Osteoporose; Atenção Primária à Saúde; Prevenção de Doenças; Fraturas Ósseas; Avaliação de Risco.

ABSTRACT

Objective: To analyze strategies developed in primary health care that contribute to the prevention of osteoporosis and the reduction of fracture risk in adults and older adults. **Method:** An integrative literature review was conducted using the PubMed/MEDLINE database, considering publications from 2021 to 2026. After applying the selection criteria, seven studies were evaluated; four were excluded for not meeting the scope of the study, resulting in three articles in the final sample. **Results:** The main strategies identified were early recognition of risk factors, bone health screening, timely diagnosis and treatment, monitoring of treatment adherence, and preventive interventions to reduce the occurrence and recurrence of fractures. **Conclusion:** Primary health care is essential in the prevention of osteoporosis and fractures, especially through early risk identification, continuous monitoring, and the implementation of individualized preventive measures.

DESCRIPTORS: Osteoporosis; Primary Health Care; Disease Prevention; Bone Fractures; Risk Assessment.

RESUMEN

Objetivo: analizar las estrategias desarrolladas en la atención primaria de salud que contribuyen a la prevención de la osteoporosis y a la reducción del riesgo de fracturas en adultos y personas mayores. **Método:** revisión integrativa de la literatura, realizada en la base de datos PubMed/MEDLINE, considerando publicaciones entre 2021 y 2026. Tras aplicar los criterios de selección, se evaluaron siete estudios, de los cuales se excluyeron cuatro por no ajustarse al alcance del estudio, lo que dio como resultado tres artículos en la muestra final. **Resultado:** Las principales estrategias identificadas fueron la detección precoz de los factores de riesgo, el cribado de la salud ósea, el diagnóstico y el tratamiento oportunos, el seguimiento de la adherencia terapéutica y las intervenciones preventivas para reducir la incidencia y la recurrencia de las fracturas. **Conclusión:** la atención primaria de salud es fundamental para la prevención de la osteoporosis y las fracturas, especialmente mediante la identificación precoz del riesgo, el seguimiento continuo y la aplicación de medidas preventivas individualizadas.

DESCRIPTORES: Osteoporosis; Atención primaria de salud; Prevención de enfermedades; Fracturas óseas; Evaluación de riesgos.

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INTRODUCTION

Osteoporosis is a major health problem due to its progressive and often asymptomatic nature; it may remain undiagnosed until a fragility fracture occurs. Its consequences are particularly significant among older adults and the elderly, in whom fractures may be associated with a loss of functional ability, reduced independence, and an increased need for health care. Despite advances in risk assessment, diagnosis, and treatment methods, gaps remain regarding the early identification of vulnerable individuals and the timely initiation of measures aimed at preventing the disease and its complications[1]. In this context, Primary Health Care (PHC) plays a strategic role in the prevention and manage-

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ment of osteoporosis, given its ability to facilitate longitudinal follow-up, identify risk factors, and coordinate care over time. The proximity of primary care services to the population facilitates the identification of individuals at higher risk before fractures occur, enabling the implementation of preventive measures, diagnostic evaluation, and individualized therapeutic interventions[2].

The prevention of osteoporosis and fragility fractures involves various strategies, including risk assessment and stratification, targeted bone health screening, guidance on physical activity, fall prevention, the implementation of health promotion measures, and, when indicated, the initiation and monitoring of treatment. In individuals with increased vulnerability or a history of fractures, the implementation of multifactorial interventions and continuous follow-up can help reduce the risk of new events[1-3].

However, although primary health care (PHC) has the potential to address different stages of prevention and care for people at risk of osteoporosis, challenges remain regarding the integration of risk identification, screening, diagnosis, treatment, and longitudinal follow-up. The existence of these gaps underscores the need to understand which strategies developed within the primary care setting have been described in the literature and how these interventions can help expand early detection of the disease and reduce the incidence of fractures[1-2].

In light of this, a synthesis of the available evidence on the topic can help expand knowledge about the potential roles of primary health care (PHC) and inform the organization of preventive measures targeting the adult and elderly populations. Thus, this integrative review aimed to analyze the strategies developed in Primary that contribute to the prevention of osteoporosis and to reducing the risk of fractures in adults and older adults.

METHOD

This is an integrative literature review based on available scientific evidence, with the objective of analyzing scientific publications on osteoporosis prevention strategies developed in Primary Health Care for adults and older adults. An integrative review involves analyzing key studies that provide a basis for decision-making, enabling a summary of the current state of knowledge on a specific topic, as well as identifying knowledge gaps that need to be addressed through further research[4].

An integrative literature review allows for the critical evaluation and synthesis of existing knowledge in an orderly and systematic manner, with the aim of generating a consistent and meaningful whole through findings derived from diverse and representative studies on a specific topic.

The following phases were followed in the preparation of this integrative review:

Phase 1: The study's guiding question was formulated: "What strategies developed in primary health care contribute to the prevention of osteoporosis and to reducing the risk of fractures in adults and older adults?" After formulating the guiding question, the following subject headings related to the study's theme were defined: Osteoporosis; Primary Health Care; Disease Prevention; Bone Fractures; Risk Assessment. For the literature search, controlled subject headings and free-text terms were used, in accordance with the strategy presented in the following phase.

Phase 2: The literature search was conducted in the PubMed/MEDLINE database in June 2026. The search strategy was constructed using controlled descriptors from the Medical Subject Headings (MeSH) and free-text terms, combined using the Boolean operators AND and OR, according to the following strategy: ("Osteoporosis"[MeSH Terms] OR osteoporosis[Title/Abstract]) AND ("Primary Health Care"[MeSH Terms] OR "primary care"[Title/Abstract]) AND (prevention[Title/Abstract] OR screening[Title/Abstract] OR "risk assessment"[Title/Abstract]). Inclusion criteria were articles published between 2021 and 2026, available in full text, and related to strategies for preventing osteoporosis and reducing the risk of fractures in the context of primary health care.

Phase 3: The selected studies were reviewed and analyzed. The search identified 143 articles. After applying the eligibility criteria, seven articles remained for analysis. Studies that did not address the research question or did not address strategies for the prevention of osteoporosis and/or the reduction of fracture risk in the context of Primary Health Care were excluded (Figure 1).

Phase 4: A customized form was used to organize the collected data, and the information was organized into a table adapted from Ursi for comparing the studies, including the authors, title, objective, main results, and final considerations[5].

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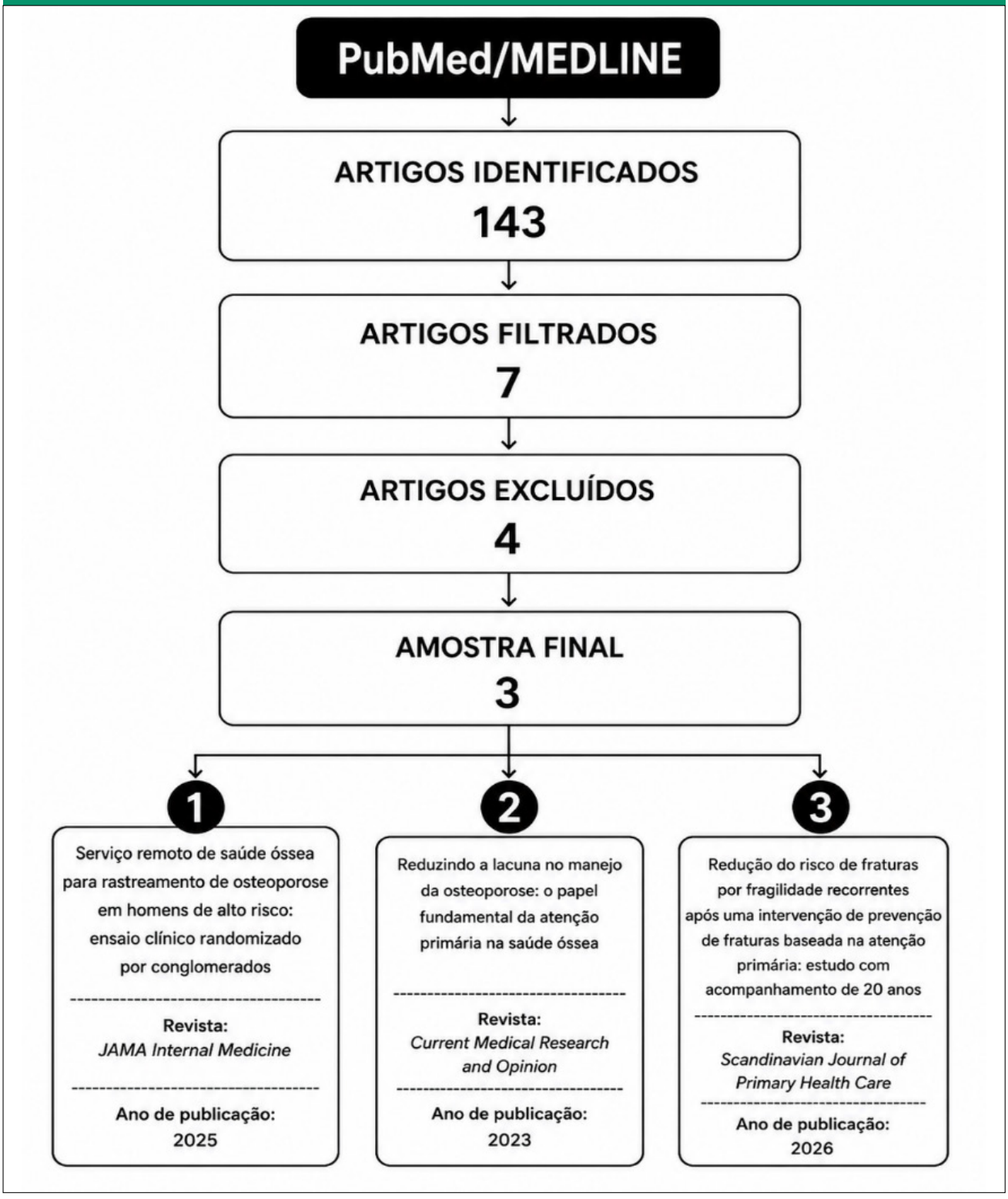
Figure 1 – Flowchart of the process for identifying, selecting, and including studies. Governador Valadares, MG, Brazil, 2026.



Source: Prepared by the authors (2026).

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RESULTS

The search identified 143 publications, of which seven remained after applying the eligibility criteria. After reviewing the titles and abstracts, four studies were excluded for not meeting the scope of the review, resulting in three articles in the final sample (Figure 1).

The included studies, published between 2023 and 2026, highlighted the following as key strategies for the prevention of osteoporosis and fractures in primary health care: early risk identification and stratification, targeted bone health screening, timely diagnosis and treatment, monitoring of treatment adherence, and the implementation of preventive interventions to reduce the occurrence and recurrence of fractures. The characteristics and main findings of the studies are presented in Table 1.

Quadro 1 – Caracterização dos estudos incluídos na revisão integrativa. Governador Valadares, MG, Brasil, 2026.

Authors	Title	Objective	Results	Final Considerations
COLÓN-EMERIC et al., 2025	Remote bone health service for osteoporosis screening in high-risk men: a cluster-randomized clinical trial.	To evaluate the impact of a remote and centralized bone health service on osteoporosis screening, treatment, treatment adherence, and bone mineral density in older men with risk factors for fractures.	A total of 3,112 men aged 65 to 85 years participated. DXA screening was performed in 49.2% of participants assigned to the intervention, compared with 2.3% in usual care. Among those screened, 51.1% had osteopenia or osteoporosis. Of eligible patients, 84.4% initiated treatment, with high treatment adherence. The model also showed a favorable effect on femoral neck bone mineral density after two years.	The remote bone health service significantly improved osteoporosis screening, treatment initiation, and treatment adherence. Selecting men for screening based on clinical risk factors proved to be a promising strategy for the early identification of osteoporosis before fractures occur, although longer-term studies are needed to assess its direct impact on fracture reduction.
SINGER et al., 2023	Bridging the gap in osteoporosis management: the pivotal role of primary care in bone health.	To analyze the role of primary care in the identification and management of osteoporosis, highlighting existing gaps in diagnosis and treatment and strategies that can be adopted to improve fracture prevention and bone health care.	The study highlights that osteoporosis remains underdiagnosed and undertreated despite its high prevalence and impact on fracture occurrence. It identifies primary care as a strategic setting for identifying individuals at risk, assessing fracture risk, achieving early diagnosis, initiating appropriate treatment, providing patient education, and monitoring adherence.	Primary care plays a central role in reducing the burden of osteoporosis and fragility fractures. Strengthening screening and risk assessment, combined with timely diagnosis, appropriate treatment, health education, and continuous patient follow-up, may help overcome existing gaps in prevention.
SJÖLANDER et al., 2026	Reduced risk of recurrent fragility fractures following a primary care-based fracture prevention intervention: a non-randomized controlled study with 20-year follow-up in women aged 70 to 100 years.	To evaluate the incidence of hip and other fragility fractures following a fracture prevention intervention developed in primary care, as well as to analyze risk factors associated with long-term fracture occurrence.	The preventive intervention developed in the primary care setting was associated with a reduced risk of recurrent fragility fractures during long-term follow-up. The study reinforced the importance of identifying risk factors and implementing preventive measures targeted at older adults with greater vulnerability to new fractures.	Structured fracture prevention strategies developed in primary care may contribute to reducing recurrent fragility fractures in older adults. The findings reinforce the relevance of early preventive interventions and follow-up of high-risk individuals within primary health care.

Source: Prepared by the authors (2026).

DISCUSSION

The findings of this review show that the prevention of osteoporosis and fractures in primary health care depends on the early identification of at-risk individuals and the organization of strategies that promote screening, diagnosis, and timely initiation of treatment[1]. These results are consistent with current recommendations that call for screening women aged 65 years or older and younger postmenopausal women at increased risk of fractures. However, for men, the evidence is still considered insufficient to recommend population-based screening, which reinforces the importance of strategies targeting individuals at higher risk, as observed in the studies included in this review[6].

The importance of risk stratification is also supported by a study conducted with Brazilian older adults, in which FRAX demonstrated the ability to predict non-vertebral fractures, even when used without bone mineral density data. These findings reinforce the applicability of clinical

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risk assessment as an initial strategy for identifying vulnerable individuals, especially in settings where access to bone densitometry may be limited[7].

In addition to risk identification, the selected studies highlight the importance of longitudinal follow-up, health education, and monitoring of treatment adherence[2]. In this regard, a study evaluating an educational program aimed at primary care observed improved adherence to osteoporosis medications, reinforcing that educational interventions and the involvement of healthcare professionals in follow-up can contribute to treatment continuity[8].

Among individuals with greater vulnerability and a history of fractures, targeted preventive interventions have also demonstrated the potential to reduce the recurrence of new events in the long term[3]. Thus, the findings suggest that isolated actions may be insufficient, and that integration between risk assessment, screening, diagnosis, treatment, and continuous follow-up within the primary health care (PHC) setting is necessary.

The interpretation of the findings should take into account the small number of studies that met the eligibility criteria, highlighting the limited scientific literature available on osteoporosis prevention strategies specifically in the context of primary health care. Nevertheless, the studies analyzed allowed us to identify strategies relevant to clinical practice and point to the need for further research in different populations and care settings.

CONCLUSION

The strategies developed in primary health care that contribute to the prevention of osteoporosis and the reduction of fracture risk involve the early identification of risk factors, targeted screening, timely diagnosis and treatment, longitudinal follow-up, and the implementation of preventive interventions to reduce the occurrence and recurrence of fractures. The integration of these actions strengthens preventive care and helps reduce the occurrence and recurrence of fractures in vulnerable individuals. In this context, the limited number of studies identified highlights the need for further research on preventive strategies applied in Primary Health Care.

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