

## **CREATING KNOWLEDGE AND ACTIONS BY PROMOTING HEALTH IN AGED WOMEN WITH OSTEOPOROSIS**

Samara Gonçalves de Oliveira<sup>1</sup> 

Célia Pereira Caldas<sup>1</sup> 

Carine Silvestrini Sena Lima da Silva<sup>2</sup> 

Rosane Barreto Cardoso<sup>3</sup> 

<sup>1</sup>Universidade do Estado do Rio de Janeiro, Faculdade de Enfermagem, Programa de Pós-graduação em Enfermagem. Rio de Janeiro, RJ, Brasil.

<sup>2</sup>Universidade do Estado do Rio de Janeiro, Faculdade de Enfermagem. Rio de Janeiro, RJ, Brasil.

<sup>3</sup>Universidade Federal do Rio de Janeiro, Escola de Enfermagem Anna Nery. Rio de Janeiro, RJ, Brasil.

### **ABSTRACT**

**Objective:** to analyze how Paulo Freire's theoretical framework can contribute to understanding the awareness-raising process about aging, by promoting health and self-care in aged women with osteoporosis and considering the socioeconomic and environmental factors involved in this process.

**Method:** a qualitative and descriptive study conducted by means of secondary analysis of data from a primary study carried out between December 2019 and February 2020, which included 25 aged women treated in a Rheumatology health unit of a university hospital. This analysis intended to return to a *corpus* of previously collected data, aiming to reexamine them from a new investigative angle, Paulo Freire's theoretical perspective, which served as theoretical-methodological framework.

**Results:** the findings of this research enabled an approach to the reality of aged women with osteoporosis through a critical reflection on the practice and sensitization inherent to the human essence. This allowed revealing aspects that were hidden and driving the creation of concrete action proposals in relation to the participants' reality.

**Conclusion:** nurses' crucial role in the assistance provided to aged women with osteoporosis was verified, as well as the efficiency of a dialogical approach that values their self-care choices and skills. As a dynamic process that involves actions, reflections and new actions, the health perception strengthens Freire's perspective in the Nursing practice as a strategy to develop diverse knowledge and actions along with aged women with osteoporosis, aiming to promote emancipating assistance based on the care ethics.

**DESCRIPTORS:** Aged person. Nursing. Osteoporosis. Health promotion. Education in health. Teaching-learning.

**HOW CITED:** Oliveira SG, Caldas CP, Silva CSSL, Cardoso RB. Creating knowledge and actions by promoting health in aged women with osteoporosis. *Texto Contexto Enferm* [Internet]. 2023 [cited YEAR MONTH DAY]; 32:e20220303. Available from: <https://doi.org/10.1590/1980-265X-TCE-2022-0303en>

# CONSTRUINDO SABERES E FAZERES MEDIANTE A PROMOÇÃO DA SAÚDE DE MULHERES IDOSAS COM OSTEOPOROSE

## RESUMO

**Objetivo:** analisar como o referencial teórico de Paulo Freire pode contribuir para a compreensão do processo de conscientização sobre o envelhecimento, mediante a promoção da saúde e o cuidado de si de mulheres idosas com osteoporose, considerando os fatores socioeconômicos e ambientais implicados nesse processo.

**Método:** estudo qualitativo descritivo realizado através da análise secundária de dados de um estudo primário conduzido entre dezembro de 2019 e fevereiro de 2020, que contou com 25 idosas atendidas em uma unidade de saúde de reumatologia em um hospital universitário. Esta análise ensejou o retorno a um *corpus* de dados previamente coletados, visando reexaminá-los sob um novo prisma investigativo, a perspectiva teórica de Paulo Freire, que atuou como arcabouço teórico-metodológico.

**Resultados:** os achados desta pesquisa possibilitaram uma aproximação da realidade das idosas com osteoporose através de uma reflexão crítica sobre a *práxis* e conscientização inerentes à essência humana. Isso permitiu revelar aspectos que estavam ocultos e impulsionar a criação de propostas concretas de ação em relação à realidade das participantes.

**Conclusão:** verificou-se o papel crucial do enfermeiro na assistência às idosas com osteoporose e a eficiência de uma abordagem dialógica que valoriza suas escolhas e habilidades para o cuidado de si. A percepção da saúde como um processo dinâmico, que envolve ações, reflexões e novas ações, fortalece a efetividade da perspectiva freiriana na prática de enfermagem como uma estratégia para construir saberes e fazeres em conjunto com as idosas com osteoporose, com o objetivo de promover uma assistência emancipadora baseada na ética do cuidado.

**DESCRITORES:** Pessoa idosa. Enfermagem. Osteoporose. Promoção da saúde. Educação em saúde. Ensino-aprendizagem.

# CREAR CONOCIMIENTOS Y ACCIONES PROMOVRIENDO LA SALUD DE ANCIANAS CON OSTEOPOROSIS

## RESUMEN

**Objetivo:** analizar de qué manera el referencial teórico de Paulo Freire puede ayudar a entender el proceso de concientización sobre el envejecimiento, promoviendo la salud y el autocuidado en ancianas con osteoporosis y considerando los factores socioeconómicos y ambientales implicados en este proceso.

**Método:** estudio cualitativo y descriptivo realizado a través de análisis secundario de los datos obtenidos en un estudio primario llevado a cabo entre diciembre de 2019 y febrero de 2020 y que incluyó a 25 ancianas atendidas en una unidad de salud especializada en Reumatología de un hospital universitario. Este análisis pretendió retornar a un *corpus* de datos previamente recolectados, a fin de volver a examinarlos desde un nuevo ángulo de investigación, la perspectiva teórica de Paulo Freire, que sirvió como marco teórico-metodológico.

**Resultados:** los hallazgos de este trabajo de investigación hicieron posible un acercamiento a la realidad de las ancianas con osteoporosis a través de una reflexión crítica sobre la *praxis* y la concientización inherentes a la esencia humana. Eso permitió revelar aspectos que estaban ocultos e impulsar la creación de propuestas concretas de acción en relación con la realidad de las participantes.

**Conclusión:** se verificó el rol crucial de los profesionales de Enfermería en la asistencia provista a ancianas con osteoporosis, al igual que la eficiencia de un enfoque dialógico que valoriza sus elecciones y habilidades para el autocuidado. La percepción de la salud como un proceso dinámico que implica acciones reflexiones y nuevas acciones fortalece la efectividad de la perspectiva de Freire en la práctica de Enfermería como una estrategia para crear conocimientos y acciones junto con las ancianas que padecen osteoporosis, con el objetivo de promover una asistencia emancipadora basada en la ética de la atención.

**DESCRITORES:** Anciano. Enfermería. Osteoporosis. Promoción de la salud. Educación en salud. Enseñanza-aprendizaje.

## INTRODUCTION

Population aging is a global phenomenon whose relevance has been intensifying in the last decades; therefore, studying it acquires increasing visibility in the health scope due to the expansion of approaches related to the promotion of healthy aging<sup>1</sup>. As the number of older adults increases, the incidence and prevalence of chronic non-communicable diseases are also higher, with the possibility of contributing to the onset of functional disabilities and limitations, as is the case of osteoporosis<sup>2</sup>.

As a pathology that especially affects aged women, osteoporosis is characterized by bone mass loss and by skeletal frailty, both predisposing to fractures. The importance of nurses' qualified performance is verified in the health care targeted at aged people with osteoporosis. In addition to that, it is worth noting that, at any care level, nurses are fundamental for the development of educational actions aimed at promoting health and preventing problems arising from the disease. This can be achieved by means of active listening, by identifying health needs and through dialog in the construction of diverse knowledge related to care measures targeted at health promotion<sup>3-4</sup>.

Education in health is a knowledge construction process that enables developing intellectual autonomy, in addition to representing an important tool to improve aged women's quality of life and health. The popular education practices inspired by Paulo Freire have been recognized in the literature as a new approach that values people's knowledge, including popular wisdom, seeking to promote relational horizontality between health professionals and the community. Consequently, popular education in health is a political-pedagogical process that enables transformation and liberation of both individuals and collectives<sup>5</sup>.

Educator Paulo Freire considers awareness raising as the first and foremost objective of all education, understanding that it not only involves a stance towards reality, adopting a falsely intellectual stance since, for the author, sensitization cannot exist outside the "praxis," reason why this dialectical unit, action-reflection, shapes the way of being or of transforming the world. In summary, awareness raising is a historical commitment that implies each person's engagement to assume the role of subjects that shape and reshape the world<sup>6</sup>. Consequently, when health practices in the care of aged women are guided by popular education in health, a space is created for sharing diverse information and knowledge between professionals and aged women, fostering sensitization for health promotion in a critical way.

Considering the pertinence of this topic, it was sought to map the diverse evidence available in the national and international literature about the educational actions in health targeted at aged women with osteoporosis; therefore, an integrative review was conducted in the MEDLINE via PubMed, LILACS, CINAHL, Web of Science and Embase databases, considering materials published between 2017 and 2022. However, it was verified that most of the research studies address preventive actions and, in addition, no study was found based on Freire's perspective on education in health related to this research proposal<sup>7</sup>.

It is evident that educational interventions can help women with osteoporosis to prevent modifiable risk factors, as well as reduce the complications arising from the disease and play an important role in improving aged women's quality of life by means of sensitization and optimization of health actions in relation to self-care<sup>8</sup>. It is also verified that education in health can assist in the awareness raising process about this condition and in developing critical-constructive thinking for personal care, which contributes to greater engagement in the health-disease-care process<sup>9</sup>.

The current research gains national and international importance because it indicates the scarcity of studies on education in health directed to aged women with osteoporosis and proposes an application of Paulo Freire's theoretical approach in health education. Once this gap is identified, Freire's approach can bridge it, offering valuable insights about possible deficits in the actions targeted at health promotion in aged women and in the development of more effective health policies for aged women with osteoporosis at the global level. It is for this reason that this topic is particularly relevant given the increase in global life expectancy and the challenges in health linked to osteoporosis.

Therefore, the objective of this study was to analyze how Paulo Freire's theoretical framework can contribute to understanding the awareness-raising process about aging, by promoting health and self-care in aged women with osteoporosis and considering the socioeconomic and environmental factors involved in this process.

## METHOD

A descriptive study with a qualitative approach based on Paulo Freire's theoretical framework was developed, performing a secondary analysis of data collected in a primary study, in order to achieve an approach to the objective reality of aged women with osteoporosis through a critical reflection on the praxis and sensitization inherent to the human essence, which both require from each person active and engaged participation and leading roles in self-care<sup>10</sup>.

The secondary analysis revisits previously collected data with a new theoretical perspective, Paulo Freire's approach in this case, to investigate how it can contribute in the construction of diverse knowledge and practices in health in aged women with osteoporosis<sup>6</sup>. It is also important to ensure proper matching between the data available and the new research proposal, which was achieved in this study. Secondary analyses of data from primary studies are valuable to explore new perspectives or deepen on elements from the data that were not fully analyzed<sup>11</sup>.

The qualitative approach used in this research is strongly articulated with Paulo Freire's theoretical framework, as it explores the participants' social context and enables revealing what is hidden, in order to foster concrete action proposals in relation to their reality<sup>12</sup>.

### Primary study data

A form was employed to collect sociodemographic and clinical data, in order to characterize the participants (these variables are described in Table 1). To survey information about self-care, the following interview script based on the elements from Nola Pender's Health Promotion Model (HPM) was used: what is known about osteoporosis and its consequences?; Which self-care attitudes are adopted after the osteoporosis diagnosis?; Which other actions might be taken in relation to osteoporosis to improve health?; Which are the obstacles or challenges for self-care?; What people and situations help or hinder self-care?; Which are the personal beliefs about the ability to avoid obstacles for self-care?; and Which action plan can be implemented to improve health in relation to osteoporosis? Another form was used to establish this action plan. Each participant prepared their action plan with no restrictions, based on recognizing the importance of improving their own care in everyday life. The lead nurse-researcher supported preparation of the individual plans in a dialogical way, indicating the risk behaviors identified in the initial evaluation, as well as suggesting options to deal with the difficulties inherent to adopting healthy behaviors.

**Table 1** – Characteristics of the aged women with osteoporosis. Rio de Janeiro, RJ, Brazil, 2023. (n=25)

Variables	n (%)
Marital status: Widows	10 (40%)
Schooling level: Complete 1 <sup>st</sup> grade	7 (28%)
Income: From one to two minimum wages	15 (60%)
Work situation: Retired	18 (72%)
Number of children: From one to two	14 (56%)
Fear of falling after the osteoporosis diagnosis	16 (64%)
History of falls and fractures due to bone frailty	
Falls in the last two years	15 (60%)
Aged women ≥ 75 years old who fell	9 (36%)
History of fractures due to bone frailty	10 (40%)
Factors related to the occurrence of falls in aged women	
Advancing age	13 (52%)
Use of medications that reduce bone mass	3 (12%)
Use of medications with Grade II risk for falls	17 (68%)
Visual impairment	25 (100%)
Risk factors for falls related to visual impairment	
Proper use of corrective glasses	8 (32%)
Non-adaptation to bifocal glasses	9 (36%)
Incorrect use of corrective glasses	8 (32%)
Low consumption of calcium-rich food products	
Daily consumption of calcium-rich food products	22 (88%)
Daily calcium intake	≥1,200 mg/day: 2 (8%) <1,200 mg/day: 23 (92%)
Consumption below the recommended	<50% of the recommended: 18 (72%) 50-99% of the recommended: 5 (20%)
Avoiding consumption of milk and its derivatives	9 (36%)

The intentional, by opinion and non-probability sampling technique was used to select the research participants<sup>13</sup>. In this way, the lead researcher attended the health unit and headed to the Rheumatology service on the days of the medical appointments scheduled for osteoporosis monitoring. She introduced herself to the women and invited them to take part in the study, either before or after the medical appointments. On that occasion, the study objectives were clarified, as well as data confidentiality and the right to withdraw from the research at any moment with no need for justifications. The aged women that wished to participate signed a consent form at the beginning of the interviews, as required by Resolution N<sup>o</sup>. 466 of December 12<sup>th</sup>, 2012.

The study participants were 25 women that met the research inclusion criteria, namely: being aged (at least 60 years old), according to the Older Adults' Statute (Law No.10,741/03); and having being diagnosed with osteoporosis based on the World Health Organization (WHO) clinical or densitometric criteria (densitometric test with a T score equal to or lower than -2.5)<sup>14-15</sup>. The following exclusion criteria were considered: having being diagnosed with other pathologies causing disabling pain or any impairment for verbal expression of thought. After due approval by the Research Ethics Committee, the study was developed at a health unit specialized in Rheumatology located in a university hospital, which treats individuals with chronic conditions through referrals via the National Regulation System

(*Sistema Nacional de Regulação*, SISREG) or internally. As a result, the individuals with osteoporosis underwent regular consultations, routine tests and monitoring of their treatment. In addition to that, the guidelines set forth in the Consolidated Criteria for Reporting Qualitative Research (COREQ) were adopted with the objective of ensuring reliability of the study<sup>16</sup>.

Individual semi-structured interviews were conducted in a room at the aforementioned specialized health unit in a flexible way, until data saturation was reached. Choice of this interview technique was based on its ability to analyze attitudes and behaviors and to record reactions and gestures, as well as on the possibility for the interviewer to repeat or clarify questions to the interviewee, in addition to being applicable both to literate and illiterate subjects<sup>17</sup>. A total of 25 women with a mean age of 74.04 years old and mean time of 17 years since the osteoporosis diagnosis took part in the research. After obtaining due consent, the interviews were recorded and subsequently transcribed and analyzed according to Nola Pender's HPM<sup>18</sup>.

At the end of each interview, the researcher developed an action plan along with each participant as foreseen in Nola Pender's HPM, taking into account improvements in the health actions related to self-care, which was considered an enriching moment, as the participants critically reflected on health care measures that might be optimized. Subsequently, the researcher developed a general diagram representing the entire group of aged women with osteoporosis treated at the health unit specialized in Rheumatology. Such diagram was created through the analysis of the participants' testimonies and of the individual diagrams, according to Nola Pender's HPM<sup>18</sup>.

## Secondary data analysis

The unprocessed data from the interviews were reexamined and interpreted according to the chronological stages of Bardin's content analysis, which involve three different phases: 1) Pre-analysis, with the objective of operationalizing the material and systematizing the initial ideas; 2) Exploration of the material, which allows for a rich data interpretation and categorization; and 3) Treatment of the results, inference and interpretation<sup>19</sup>.

The data were analyzed from the perspective of Paulo Freire's Pedagogy, which sees education as a liberating practice committed to social transformation. Therefore, in this approach, health promotion considers people's needs and contexts – social, cultural and political – seeking to improve their quality of life. For such purpose, dialog and the individuals' active participation in knowledge construction and decision-making stand out, which are fundamental for fair and equitable health promotion<sup>20–22</sup>.

## RESULTS

In meeting the research goal stipulated, which aimed at analyzing how Paulo Freire's theoretical perspective might contribute to the construction of diverse knowledge and actions in aged women with osteoporosis, a reanalysis of the interviews collected in the primary study was performed, based on which a total of three thematic categories were extracted, namely: the possibility of gaining awareness about osteoporosis and the care measures for health promotion; the possibility of gaining awareness about aging as a process influenced by socioenvironmental and economic factors that hinder self-care; and The possibility of engaging in the health promotion and self-care process.

### **The possibility of gaining awareness about osteoporosis and the care measures for health promotion**

The problematization about the previous knowledge on the experiences regarding osteoporosis and its possible health complications allowed the aged women to gain awareness about their real life situation and, in this way, to reflect on and better understand the health-disease-care process.

This new perspective towards their condition contributed for them to construct their own knowledge and modified knowledge about the required care measures for their own health, as verified in the statements below:

*[...] I only know about the issue of the fractures: avoid them as much as possible. Just like this, what I told you, right? Running, so as not to fall [...], now I was thinking about that, I believe that I'm really going to have to place a bar in the bathroom, right? (109).*

*[...] I have to avoid falls, I have to avoid falls because, for me, a fall can be fatal, as any person living with osteoporosis [...], I almost fell because my glasses are all ill-regulated here, I have to regulate them" (123).*

*[...] eating, what do I have to take for that? What's good for osteoporosis? I want to know. I wanted to know because I forget, sometimes. Because, taking calcium, calcium, calcium, I eat better [...], eating is the main thing, and moving. I used to do Aquagym there in Madureira, at the SESC, I have exactly, it's been one or two years since I don't do it, very good, swimming in the pool. I used to go out, go up the stairs to catch the train, dear God, what's happening to me? Spectacularly well (108).*

### **The possibility of gaining awareness about aging as a process influenced by socioenvironmental and economic factors that hinder self-care**

Based on the dialog fostered by the research, the aged women gained awareness about the factors that hindered self-care and interfered in their perception of well-being throughout aging. These factors are related to the limitations inherent to age, to financial insufficiency, to urban violence and to precarious urban infrastructure, as seen in the testimonies:

*[...] I feel.... it's sad for me because I've always had... I've always been very active in everything, I used to solve everything, I was a very active person, and now, I feel out of the deck, a card out of the deck now because of this osteoporosis I have and the sight, then they were two bad things in me that are bothering me... it's not osteoporosis that much, the pain in the bones, as well as the sight, it's the sight that's treating me worse. I worked all my life [...] When I stopped working, I said that I like traveling very much, I said: "When I stop working, I'm going to travel all the time"... on the contrary, it seems that, when I stopped, then I shouldn't have stopped at all because, at the company where I used to work, at the firm, they didn't want me to leave... I say: "I'm going to want to live a little", I'm living less (114)*

*[...] the medication indicated now in my case, due to my age, I've already broken two ribs and my wrist, then it'd be Teriparatida, which is Fortel, but it's R\$ 2,500 each box for a month's time and it's a two-year treatment that I'm going to need, then I have no way to pay for that medication, I don't have it and, then, I need that medication already, I need it very much (122).*

*[...] it's very dangerous to walk over there, you know? It's that I've walked a lot and I'm afraid of falling, and those tree roots, there I'm afraid, fear of falling, you know?, I'm really afraid of falling, even more at the age of 84 (116).*

### **The possibility of engaging in the health promotion and self-care process**

The aged women interviewed noticed the benefits they might achieve in relation to their own health when gaining awareness about osteoporosis and showing willingness to improve their habits. In addition to that, they expressed active commitment to health promotion and to self-care when reflecting on their conditions and, therefore, planning actions to improve their personal care. This was evidenced by means of phrases that denoted their active and participatory stance, thus portraying their involvement in the health promotion and self-care process. Some examples of this committed stance are included below:

[...] at home I'm only using those little Hawaiian sandals which I'm going to, even due to this research here, I'm going to stop using. I'm also going to gradually stop with that rug thing. I've never been too fond of carpets in my house, no. One of my friends is with a broken arm now, because she's already fallen n times due to that (121).

[...] if I don't get any hold, I fall, it's just like that: my spine's not very balanced, no way, you know? A proper, straight posture, no way. I'm going to have to buy a walking stick to get a hold (106).

[...] I sometimes forget, for example, about Vitamin D, there was a drop once because I relaxed a little... this injection that's every day, I sometimes forget some days. I say: "Damn, I don't like that". I have to change the medication time and learn that I need to take it in the mornings. Because then you get distracted, distracted, distracted and forget, it's happened before. Now I'm going to start taking it always in the mornings, during the morning, because then I forget, get distracted, watch some soap opera, see something and, when I go look it's already midnight, then I can't take it anymore. It's every day (105).

### Synthesis of the action plan from Freire's perspective

Based on the critical reflection and decision-making about their reality, an action plan to transform it was prepared with each aged woman. Therefore, 25 individual plans were developed from Freire's perspective (Chart 1).

Chart 1 – Synthesis of the action plan from Freire's perspective. Rio de Janeiro, RJ, Brazil, 2022.

Synthesis of all 25 action plans prepared with the aged woman with osteoporosis to transform their reality, from Freire's perspective	
Essential elements of an action plan from Paulo Freire's theoretical perspective	<ul style="list-style-type: none"> <li>• Critical reflection about reality, the life context, the previous knowledge and the individual experiences of aged women with osteoporosis, associated with the aging process underwent as linked to the socioenvironmental and economic influences;</li> <li>• Recognizing and gaining awareness about benefits for health and for preventing problems linked to osteoporosis based on practices targeted at self-care;</li> <li>• Social engagement and promotion of one's own health by being willing to learn more about osteoporosis and to improve self-care practices.</li> </ul>
Knowledge	Popular wisdom and scientific knowledge.
Interfaces between both	A constructive dialog between popular wisdom and scientific knowledge related to osteoporosis and to the life context of aged women with the disease.
Action plan from Paulo Freire's theoretical perspective	Conscious decision-making related to transforming their reality, encompassing the following: <ul style="list-style-type: none"> <li>• Social engagement;</li> <li>• Search to understand more about osteoporosis;</li> <li>• Willingness to practice physical and leisure activities and to lie in the Sun, adherence to the pharmacotherapy; use of medication reminders; searching legal means to buy medications for osteoporosis; increased consumption of calcium-rich food products; elaboration of a balanced and diversified eating plan; reduction in the caffeine intake; weight gain monitoring; reduction in the number of cigarettes/day; use of the lactase enzyme when lactose-intolerant; eye health care and ophthalmological monitoring; rotation schedules with other relatives in the care of a dependent family member; shoe adaptations; home adaptations; and strengthening of the affective ties with family members and friends.</li> </ul>

## DISCUSSION

This secondary analysis revealed important implications for health promotion in aged women with osteoporosis in the light of Paulo Freire's theoretical perspective; consequently, the results highlighted how the thinker's approach can contribute to the construction of diverse knowledge and actions in aged women with osteoporosis, as it provides solid theoretical grounds for the promotion of more effective health care measures centered on aged women's active participation.

In the findings from the "possibility of gaining awareness about osteoporosis and the care measures for health promotion" category, the importance of active listening and of the interlocution achieved by means of dialogical communication was observed. Dialog proved to be a fundamental tool to reveal the reality experienced by the aged women, enabling critical reflection and sensitization about osteoporosis, its possible consequences and the required care measures for the promotion of their own health. This practice allowed the users to be heard and their voice to be expanded and respected, identified as an essential care device that contributes to a more holistic and person-centered approach<sup>23</sup>.

In summary, recent results emphasize the crucial importance of education in health to encourage the self-perception of risk behaviors associated with osteoporosis, including inadequate eating habits and consumption of psychoactive substances such as nicotine, alcohol and caffeine<sup>8</sup>. A study that employed the Health Beliefs Model in older adults from the perspective of rehabilitation for osteoporosis-related fractures evidenced the positive effect of this model on sensitization about the disease, highlighting the relevance of approaching issues such as anxiety, depression and other negative emotions in the rehabilitation of these individuals<sup>24</sup>.

The findings of a research study conducted with older adults by means of a dialogical educational activity based on Freire's theoretical framework highlights that this care practice is an effective tool to promote an interaction space that stimulates awareness raising in relation to self-care, generating greater autonomy and improvements in quality of life. Therefore, the experiences underwent by the older adults revealed that, as a mediator of the care actions, dialog is a driver for their self-appreciation as social agents, acknowledging their diverse knowledge and practices, thus contributing to paving a way characterized by listening, bonding and reciprocal exchanges based on their beliefs, values and attitudes, aiming at emancipating care<sup>25</sup>. This is because education in health in the dialogical format recognizes all human beings as knowledge subjects, as everyone has some type of wisdom: wisdom derived from life experiences, from work, from community relationships, from family members and from the relationship with schools and health services<sup>5:33</sup>. Therefore, assistance practices that verticalize scientific knowledge relegate the users' knowledge to a subordinate space, which hinders apprehension of the health-disease-care process experienced by people.

In this research, the importance of a dialogical approach that overcomes hierarchization of knowledge was highlighted, promoting a reflection on the health-disease-care process, as well as sensitization about the consequences of osteoporosis and the positive impacts on the adoption of self-care-related practices<sup>6</sup>. It is for this reason that it is fundamental to acknowledge each individual as the protagonist in managing their own care measures to achieve comprehensive health promotion<sup>18</sup>.

Regarding the results found in the "possibility of gaining awareness about aging as a process influenced by socioenvironmental and economic factors that hinder self-care" category, deeper understanding about aging as a process influenced by socioeconomic and economic factors with impacts on self-care was observed. That sensitization contributed to making decisions in relation to the need to transform their own reality in terms of health, considering these factors in their choices and actions.

A research study investigated the effects of socioeconomic and demographic factors on the bone health of post-menopausal aged women with diabetes and osteoporosis. The factors mentioned were varied and involved the following: aging, inadequate physical activity, Body Mass Index (BMI), economic situation, schooling level, occupation, family history and lifestyle, which were identified as associated with changes in bone mineral density. Therefore, it is essential to reflect on these aspects in the clinical approach for osteoporosis and in the formulation of public health policies targeted at the care of these people, as these issues play a crucial role in the effective promotion of their health<sup>26</sup>.

Health education strategies based on dialogicity expand the spaces for discussing the historical and social mediations that exert an impact on people's health conditions. By exploring the contradictions evidenced in this study – such as the social inequalities resulting from factors like financial insufficiency, urban violence, precarious urban infrastructure and devaluation of older adults in the capitalist society – it is possible to understand how these aspects directly affect aged women's self-care and contribute to the social vulnerability they face. These reflections are important to provide a more encompassing understanding of the issues influencing aged women's health and to develop more contextualized educational approaches sensitive to their realities.

It is important to stimulate health promotion actions linked to the paradigmatic conception of social determination, which understands coping with the economic, political, social, cultural, collective and individual factors in a dynamic way, among others, in order to favor quality of life in women with osteoporosis<sup>27</sup>.

In a study conducted with older adults using popular education in health, it was observed that there was better understanding of the reality experienced by this population group, resulting in more responsible health practices. Consequently, through the stimulus to reflect on the importance of an improvement in relation to harmful habits for health, self-esteem was enhanced, as well as the interest in learning and in the prevention of problems related to chronic conditions, which also contributes to more harmonious coexistence in the family and social environments<sup>28</sup>.

In another study, a number of researchers pointed out dialogical education in health as an important instrument for older adults to recognize themselves as self-educating agents in their own aging process, favoring attitudinal changes in life habits, in health and in their own perspectives<sup>29</sup>.

Consequently, with sensitization it is possible to overcome oppression; however, this overcoming not only requires naive awareness of reality but, rather, critical awareness through the praxis<sup>6</sup>. Obtained when problematizing the concrete reality experienced by the aged women, critical awareness proved to be a liberating practice, as transformations take place from sensitization, which frees people so that they can live as full historical subjects<sup>20</sup>. This is why sensitization allowed overcoming awareness raising as a semi-intransitive or transitive-naive conscience state, enabling critical inclusion of the sensitized aged women in their demystified reality<sup>6</sup>.

In view of this, certain self-perception of aging as an experience with negative repercussions on their well-being was observed, linked to the social determination of the aged women's health conditions, as they experienced concrete situations marked by difficulty accessing goods, services and resources for their best self-care and for the promotion of their own health. Thus, the self-perception of aging exerts direct impacts on a person's health status, resulting in their opinion about their old age, a process influenced by their culture, social environment, history and life stereotypes<sup>2</sup>.

However, it is frequent that the concrete oppression situations reduce the historical time of the oppressed to a prolonged state of despair and accommodation, which turns them into easy preys of assistance-targeted policies, leading to an alienating routine<sup>21</sup>.

“Health cannot be marketed. We cannot allow that only those who have money can access health services. Not only that, everyone should enjoy good living conditions. A people with no living conditions will suffer and die.”<sup>6:30</sup>.

Regarding the study category called “possibility of engaging in the health promotion and self-care process”, willingness for self-care was identified as a result of self-reflection, which stimulated critical-constructive thinking in relation to the promotion of their own health. This led the aged women to outline care actions and to adopt attitudes when faced with the responsibility and concern about their own life, contributing to a critical and transformative attitude in relation to their own reality.

In a study that used an educational booklet developed by the Ontario Osteoporosis Strategy with the objective of reinforcing knowledge about osteoporosis and influencing the intentions of improving bone health in previously diagnosed and treated patients, it was observed that the booklet was a motivation source for the individuals to implement changes in management of their bone health, in addition to working as a reference tool, reinforcing current practices and beliefs<sup>30</sup>.

Developing a pedagogy that allows the oppressed to reflect on their oppression and its causes intends for greater personal involvement in the struggle for liberation, being of utmost importance for the rescue of older adults’ human dignity. This said, the emancipation process deals with a complex path, as even the revolutions that transform a concrete oppression situation into a new one face this manifestation of oppressed conscience<sup>26</sup>.

The synthesis of all 25 action plans elaborated along with the aged women with osteoporosis from Paulo Freire’s theoretical perspective revealed essential elements for transforming their reality, including critical reflection on reality, life context and individual experiences of the aged women, all related to aging as a process influenced by socioenvironmental and economic aspects. These plans also involved recognition and awareness raising about the benefits of preventing problems related to osteoporosis through practices targeted at self-care and at social engagement. Such being the case, popular wisdom and scientific knowledge were integrated by means of a constructive dialog, highlighting the importance of critical self-reflection on the aged women’s life and health context as a central element in this process. The action plan from Paulo Freire’s theoretical perspective then evolved to conscious decision-making in relation to transforming their reality.

Regarding the limitation for nurses’ practice, the results of this research highlight the relevance of their performance along with the aged women with osteoporosis, by means of a dialogical approach that supports their self-care choices and skills. This stance requires a reflection about nurses’ responsibility in the construction and refinement of democracy, by means of emancipating assistance based on the care ethics, which respects the citizens’ freedom and preserves their regulating role in social relationships<sup>22-24</sup>.

This study presents some limitations, such as the fact that it was conducted at a unit specialized in Rheumatology that only treats more severe osteoporosis cases, which can consequently restrict the conclusions herein stated when replicating them to other populations or to other care contexts. Another limitation corresponded to the lack of international studies using Paulo Freire’s theoretical perspective related to the proposal of this research, which may have restricted the comparison of the results with the international literature.

## CONCLUSION

Based on the analysis of the interviews, the study identified that the participants sought to adopt health promotion actions, mainly seeking diverse information, performing some physical activity, developing spirituality, maintaining a routine of lying in the Sun, and increasing calcium consumption. However, they lacked sufficient understanding about osteoporosis and its consequences, as well as about the various factors that hindered access to the self-care resources. In this sense, it was observed

that political, sociodemographic and economic difficulties hinder the adoption of healthy behaviors and the search for equality advocated by the Unified Health System (*Sistema Único de Saúde*, SUS). Finally, the results reinforce the need to intensify actions that may contribute to reducing the risk of fractures in aged people with osteoporosis.

The study findings reveal that, through health promotion in women with osteoporosis by means of critical reflection and constructive dialog between popular wisdom and scientific knowledge, it is possible to promote comprehensive and participatory assistance, thus contributing to transforming these women's health reality. Consequently, the conception of health as a dynamic process reinforces the efficacy of Freire's approach in the Nursing practice, with the objective of promoting comprehensive and participatory assistance. This is why, given this perspective, it is suggested that future research studies deepen on the application of Paulo Freire's theoretical approach in the Nursing practice, seeking to understand more in depth how educational practices in line with this perspective can be effectively implemented in different care contexts.

The results also emphasize the relevance of Paulo Freire's theoretical approach in the creation of emancipating health assistance based on the ethics of care. Therefore, critical reflection, constructive dialog between popular wisdom and scientific knowledge, and health and self-care promotion, contributed to constructing significant knowledge and practices in the care of aged women with osteoporosis. Given the above, future research studies should continue to explore this approach, aiming to improve nurses' practice and to promote comprehensive and participatory assistance for aged women with osteoporosis.

## REFERENCES

1. World Health Organization. Handbook: guidance on person-centred assessment and pathways in primary care [Internet]. Geneva: WHO; 2019 [cited 2022 Oct 28]. Available from: <https://apps.who.int/iris/bitstream/handle/10665/326843/WHO-FWC-ALC-19.1-eng.pdf;jsessionid=C73519C7483B673BDC63AECC5D64DD95?sequence=17>
2. Ikegami ÉM, Souza LA, Tavares DMS, Rodrigues LR. Functional capacity and physical performance of community dwelling elderly: a longitudinal study. *Ciênc Saúde Coletiva* [Internet]. 2020 [cited 2022 Oct 16];25(3):1083-90. Available from: <https://doi.org/10.1590/1413-81232020253.18512018>
3. Kanis JA, Cooper C, Rizzoli R, Reginster JY. European guidance for the diagnosis and management of osteoporosis in postmenopausal women. *Osteoporos Int* [Internet]. 2019 [cited 2022 Oct 02];30(1):3-44. Available from: [https://www.aboom.com.br/painel/principal/arquivos/artigo\\_cientifico\\_96382668b.pdf](https://www.aboom.com.br/painel/principal/arquivos/artigo_cientifico_96382668b.pdf)
4. Hertz K, Santy-Tomlinson J. *Fragility fracture nursing: holistic care and management of the orthogeriatric patient*. Cham: Springer; 2018.
5. Souza EM, Silva DPP, Barros AS. Popular education, health promotion and active aging: an integrative literature review. *Ciênc Saúde Coletiva* [Internet]. 2021 [cited 2022 Oct 11];26(4):1355-68. Available from: <https://doi.org/10.1590/1413-81232021264.09642019>
6. Freire P. *Conscientização: teoria e prática da libertação: uma introdução ao pensamento de Paulo Freire*. 3rd ed. São Paulo: Moraes; 1979.
7. Mendes KDS, Silveira RCCP, Galvão CM. Integrative review: research method for the incorporation of evidence in health and nursing. *Texto Contexto Enferm* [Internet]. 2008 [cited 2023 Apr 03];17(4):758-64. Available from: <https://doi.org/10.1590/S0104-07072008000400018>
8. Hemmati E, Mirghafourvand M, Mobasser M, Shakouri SK, Mikaeli P, Farshbaf-Khalili A. Prevalence of primary osteoporosis and low bone mass in postmenopausal women and related risk factors. *J Educ Health Promot* [Internet]. 2021 [cited 2023 Apr 03];10:204. Available from: <https://pubmed.ncbi.nlm.nih.gov/34395641/>

9. Gai QY, Lv H, Li YP, Fu QM, Li PL. Education intervention for older adults with osteoporosis: a systematic review. *Osteoporos Int* [Internet]. 2020 [cited 2023 Apr 04];31:625-35. Available from: <https://doi.org/10.1007/s00198-019-05166-5>
10. Oliveira SG, Caldas CP. Aplicação do modelo de promoção da saúde de Nola Pender a idosas com osteoporose. *Rev Norte Mineira Enferm* [Internet]. 2021 [cited 2023 Apr 03];10(2):89-101. Available from: <https://doi.org/10.46551/rnm23173092202100210>
11. Ritchie J, Lewis J. *Qualitative research practice: a guide for social science students and researchers*. London: Sage Publications; 2003.
12. Heidmann IT, Dalmoni IS, Rumor, PF, Cypriano CC, Costa M F, Durand MK. Reflections on Paulo Freire's research itinerary: contributions to health. *Texto Contexto Enferm* [Internet]. 2017 [cited 2022 Oct 19];26(4):e0680017. Available from: <https://doi.org/10.1590/0104-07072017000680017>
13. Nobre FB, Corrêa da, Nepomuceno LH, Nobre LHN, Sousa AJ, Siqueira Filho V. A amostragem na pesquisa de natureza científica em um campo multiparadigmático: peculiaridades do método qualitativo. *Rev Espacios* [Internet]. 2017 [cited 2020 Sep 02];38(22):1-11. Available from: <https://www.revistaespacios.com/a17v38n22/a17v38n21p13.pdf>
14. Brasil. Lei nº 10.741, de 1 de outubro de 2003. Dispõe sobre o Estatuto do Idoso e dá outras providências [Internet]. *Diário Oficial da União*. 2003 [cited 2019 Sep 07]. Available from: [http://www.planalto.gov.br/ccivil\\_03/LEIS/2003/L10.741compilado.htm](http://www.planalto.gov.br/ccivil_03/LEIS/2003/L10.741compilado.htm)
15. Brasil. Ministério da Saúde. Portaria MS-SAS nº 224, de 26 de março de 2014. Aprova o Protocolo Clínico e Diretrizes Terapêuticas da Osteoporose [Internet]. *Diário de Oficial da União*. 2014 [cited 2019 Sep 16]. Available from: [https://bvsms.saude.gov.br/bvs/saudelegis/sas/2014/prt0224\\_26\\_03\\_2014.html](https://bvsms.saude.gov.br/bvs/saudelegis/sas/2014/prt0224_26_03_2014.html)
16. Souza VR, Marziale MH, Silva GT, Nascimento PL. Translation and validation into Brazilian Portuguese and assessment of the COREQ checklist. *Acta Paul Enferm* [Internet]. 2021 [cited 2022 Nov 06];34:eAPE02631. Available from: <https://doi.org/10.37689/acta-ape/2021AO02631>
17. Marconi M de A, Lakatos EM. *Técnicas de Pesquisa*. 8th ed. São Paulo: Atlas; 2017.
18. Pender NJ, Murdaugh CL, Parson MA. *Health promotion in nursing practice*. 7th ed. New Jersey: Person; 2014.
19. Bardin L. *Análise de Conteúdo*. São Paulo: Edições 70; 2016.
20. Freire P. *Pedagogia do oprimido*. 65th ed. São Paulo: Editora Paz e Terra; 2018.
21. Freire P. *Pedagogia da esperança: um reencontro com a pedagogia do oprimido*. 26th ed. Rio de Janeiro: Paz & Terra; 2012.
22. Freire P. *Pedagogia da Indignação: cartas pedagógicas e outros escritos*. São Paulo: Editora Unesp; 2000.
23. Neves TCCL. *Comunicação e Cuidado na APS-ESF Evidências, reflexões, desafios* [tese]. Rio de Janeiro: Fundação Oswaldo Cruz, Programa de Pós-graduação em Informação e Comunicação em Saúde; 2021 [cited 2022 Nov 04]. Available from: <https://www.arca.fiocruz.br/bitstream/handle/icict/52534/000249612.pdf>
24. Zhang M. Effect of HBM rehabilitation exercises on depression, anxiety and health belief in elderly patients with osteoporotic fracture. *Psychiatr Danub* [Internet]. 2017 [cited 2023 Apr 04];29(4):466-72. Available from: <https://pubmed.ncbi.nlm.nih.gov/29197204/>
25. Veras DC, Lacerda GM, Forte FDS. Elderly people social groups as a tool for health empowerment: action research. *Interface* [Internet]. 2022 [cited 2022 Nov 06];26(Suppl 1):e220394. Available from: <https://www.scielo.br/j/icse/a/5bHmtxcQchRftqCpHRzfJbP/?format=pdf&lang=en>
26. Tirupathi PK, Dhanapal CK, Muvvala S, Pratap DSSP, Bejugam S, Raghavendra KSVPR. Impact of socio-demographic factors on the bone in diabetic osteoporosis postmenopausal women.

IJPSR [Internet]. 2020 [cited 2023 Apr 04];11(12):6222-6. Available from: [http://doi.org/10.13040/IJPSR.0975-8232.11\(12\).6222-26](http://doi.org/10.13040/IJPSR.0975-8232.11(12).6222-26)

27. Pettres A, da Ros MA. A determinação social da saúde e a promoção da Saúde. ACM Arq Catarin Med [Internet]. 2018 [cited 2022 Nov 06];47(3):183-96. Available from: <https://revista.acm.org.br/index.php/arquivos/article/view/375/282>
28. Almeida MS, Melo RHV, Vilar RLA de, Silva AB, Melo ML de, Medeiros Júnior A. A educação popular em saúde com grupos de idosos diabéticos na Estratégia Saúde da Família: uma Pesquisa-Ação. Rev Ciênc Plur [Internet]. 2019 [cited 2022 Nov 10];5(2):68-93. Available from: <https://doi.org/10.21680/2446-7286.2019v5n2ID16954>
29. Patrocínio WP, Pereira BPC. Efeitos da educação em saúde sobre atitudes de idosos e sua contribuição para a educação gerontológica. Trab Educ Saúde [Internet]. 2013 [cited 2022 Nov 02];11(2):375-94. Available from: <https://doi.org/10.1590/S1981-77462013000200007>
30. Linton DN, Porteous J, Eatson H, Chepesiuk R, Long T, Inrig TM, et al. Educational booklet reinforces knowledge of osteoporosis and influences intentions to improve bone health in previously diagnosed and treated patients. Osteoporos Int [Internet]. 2020 [cited 2023 Apr 04];31(9):1703-11. Available from: <https://doi.org/10.1007/s00198-020-05392-2>



## NOTES

### ORIGIN OF THE ARTICLE

Extracted from the dissertation – Health promotion in aged women with osteoporosis: An approach based on Nola Pender’s Health Promotion Model, presented at the Graduate Program in Nursing of *Universidade do Estado do Rio de Janeiro*, in 2021.

### CONTRIBUTION OF AUTHORITY

Study design: Oliveira SG, Caldas CP.

Data collection: Oliveira SG.

Data analysis and interpretation: Oliveira SG, Caldas CP.

Discussion of the results: Oliveira SG, Caldas CP, Silva CSSL, Cardoso RB.

Writing and/or critical review of the content: Oliveira SG, Caldas CP, Silva CSSL, Cardoso RB.

Review and final approval of the final version: Oliveira SG, Caldas CP, Silva CSSL, Cardoso RB.

### ACKNOWLEDGMENT

To the Graduate Program in Nursing of *Universidade do Estado do Rio de Janeiro* and to the “Carlos Chagas Filho” Research Support Foundation from the State of Rio de Janeiro.

### FUNDING INFORMATION

The current paper was carried out with the support of *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* – Brazil (CAPES) – Funding Code 001; as well as with the financial aid provided by FAPERJ in the form of the PhD scholarship granted to Samara Gonçalves de Oliveira – Process number: E-26/205.047/2022 (284141).

### APPROVAL OF ETHICS COMMITTEE IN RESEARCH

Approved by the Research Ethics Committee of *Universidade do Estado do Rio de Janeiro*, under opinion N<sup>o</sup>.3,825,061 and Certificate of Presentation for Ethical Appraisal No. 18921219.4.0000.5282.

### CONFLICT OF INTEREST

There is no conflict of interest.

### EDITORS

Associated Editors: Luciana Fabiane Sebold, Ana Izabel Jatobá de Souza.

Editor-in-chief: Elisiane Lorenzini.

### HISTORICAL

Received: December 20, 2022.

Approved: May 16, 2023.

### CORRESPONDING AUTHOR

Samara Gonçalves de Oliveira

samarasog@gmail.com

