









The elderly in primary health care: a bibliometric study of international scientific production

A pessoa idosa na Atenção Primária à Saúde: um estudo bibliométrico da produção científica internacional

El anciano en la Atención Primaria de Salud: un estudio bibliométrico de la producción científica internacional

Denise Guerra Wingerter¹ , Bárbara Fonseca Braga¹ , Camila Dayze Pereira Santos¹ , Danyllo do Nascimento Silva Junior¹ ,
Ewerton William Gomes Brito¹ , Clélia de Oliveira Lyra¹ , Luana Kelle Batista Moura¹ , Isabelle Barbosa¹ 

¹Universidade Federal do Rio Grande do Norte – Natal (RN), Brazil.

Abstract

Introduction: The aging of the world population is an achievement of humanity, but it also proves to be one of the greatest challenges, since it will result in new paradigms and political, social, economic and health demands. Thus, it is essential to discuss the aspects that involve the elderly and primary health care. **Objective:** To conduct a bibliometric analysis of the scientific production indexed by the Web of Science database regarding aspects involving the elderly and primary health care. **Methods:** Bibliometric review using the terms “Primary health care” and “Elderly” in the Web of Science database, between 1974 and 2016, analyzing the records on the basis of a review of the literature on the subject in question with the HistCite software. **Results:** A total of 700 articles were identified in 313 journals, from 2834 authors linked to 1138 institutions in 61 countries, totaling 1745 references, averaging approximately 28 references per article. The Scandinavian Journal of Primary Health Care had 4% of the papers, and the International Journal of Geriatric Psychiatry, the greatest impact factor. The most cited authors were gathered in only five universities, highlighting Linköping University with 4% of all publications; and three countries, Sweden, Brazil and the United States, accounted for 2% of the articles, with Brazil occupying first place. **Conclusions:** The studies reveal important aspects involving the elderly and primary health care, such as problems of non-compliance with health care for this population, by professionals and the elderly themselves, pointing to dehumanization and consequent lack of prioritization of this age group in the context of health. With the imminent aging of populations, it is essential that this topic be prioritized, expanding the debate on this demographic transition and its consequences for the entire population, aiming at alternatives that can minimize the impacts and new paradigms for products and services aimed at the elderly population, especially in primary care, the gateway to the entire health service and the main social link between the elderly and quality of life. It also highlights the need for continuing education of professionals and the improvement of this level of care to serve this population, which is increasingly growing.

Keywords: primary health care. elderly. bibliometrics. review.

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Corresponding author:

Isabelle Barbosa
E-mail: isabelleribeiro68@gmail.com

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Resumo

Introdução: O envelhecimento da população mundial é uma conquista da humanidade, que também se mostra um dos maiores desafios, uma vez que ocasionará novos paradigmas e demandas políticas, sociais, econômicas e de saúde. Desse modo, torna-se essencial discutir os aspectos que envolvem a pessoa idosa e a Atenção Primária à Saúde (APS). **Objetivo:** Realizar uma análise bibliométrica da produção científica referente aos fatores relacionados com a pessoa idosa e a APS. **Métodos:** Trata-se de uma revisão bibliométrica que utilizou os termos “primary health care” AND “aged*” na base de dados *Web of Science*, entre os anos de 1945 e 2016. O estudo analisou os registros com base em revisão de literatura sobre a temática em questão com o auxílio do software *HistCite*. **Resultados:** Foram identificados 700 artigos em 313 periódicos, de 2.834 autores vinculados a 1.138 instituições de 61 países, o que totalizou 19.745 referências, com média de aproximadamente 28 referências por artigo. A revista *Scandinavian Journal of Primary Health Care* possui 4% dos textos e o *International Journal of Geriatric Psychiatry*, o maior fator de impacto. Os autores mais citados estão reunidos em apenas cinco universidades, com destaque para a Linköping University, que detém 4% do total de publicações, e três países: Suécia, Brasil e Estados Unidos da América. O Brasil ocupa a primeira colocação, com 2% dos textos. **Conclusões:** Os estudos revelam aspectos importantes associados à pessoa idosa e à APS, como problemas de inobservância quanto aos cuidados de saúde para essa população, tanto por profissionais quanto pelos próprios idosos, apontando para a desumanização e consequente falta de priorização dessa faixa etária no âmbito da saúde. Com o envelhecimento das populações, é imprescindível que esse tema venha a ser priorizado, ampliando o debate sobre essa transição demográfica e suas consequências para toda a população e visando a alternativas que possam minimizar os impactos dela, bem como a novos paradigmas para produtos e serviços voltados para a população idosa. Isso especialmente na atenção primária, que é porta de entrada para todo o serviço de saúde e principal elo social entre o idoso e a qualidade de vida. Destaca-se ainda a necessidade de educação continuada dos profissionais e de aperfeiçoamento desse nível de atenção para o atendimento a essa população, quantitativamente cada vez maior.

Palavras-chave: Atenção primária à saúde. Idoso. Bibliometria. Revisão.

Resumen

Introducción: el envejecimiento de la población mundial es un logro de la humanidad, también demuestra ser uno de los mayores desafíos, ya que causará nuevos paradigmas y demandas políticas, sociales, económicas y de salud. Por lo tanto, es esencial discutir los aspectos que involucran a los ancianos y la atención primaria de salud. **Objetivo:** realizar un análisis bibliométrico de la producción científica con respecto a los aspectos que involucran a los ancianos y la atención primaria de salud. **Métodos:** tratar una revisión bibliométrica que utilizó los términos “Atención primaria de salud” y “idosos” en la base de datos de *Web of Science*, entre los años 1945 y 2016. El estudio analizó los registros basados en una revisión de la literatura sobre el tema en cuestión con la ayuda del software *HistCite*. **Resultados:** se identificaron 700 artículos en 313 revistas, de 2.834 autores vinculados a 1138 instituciones en 61 países, que totalizaron 19.745 referencias, un promedio de aproximadamente 28 referencias por artículo. El *Scandinavian Journal of Primary Health Care* tiene el 4% de los textos y el *International Journal of Geriatric Psychiatry*, el factor de mayor impacto. Los autores más citados se reúnen en solo cinco universidades, especialmente Linköping University con el 4% del total de publicaciones; y tres países: Suecia, Brasil y Estados Unidos de América, con Brasil en primer lugar, con el 2% de los textos. **Conclusiones:** Los estudios revelan aspectos importantes que involucran a las personas mayores y a la Atención Primaria de Salud, como problemas de incumplimiento de la atención en salud para esta población, tanto por parte de los profesionales como de los propios ancianos, apuntando a la deshumanización y consecuente falta de priorización de este grupo etario en el contexto de salud. Con el inminente envejecimiento de las poblaciones, es fundamental que se priorice este tema, ampliando el debate sobre esta transición demográfica y sus consecuencias para toda la población, buscando alternativas que puedan minimizar los impactos y nuevos paradigmas de productos y servicios dirigidos a la población. ancianos, especialmente en atención primaria, puerta de entrada a todo el servicio de salud y principal vínculo social entre el anciano y la calidad de vida. También destaca la necesidad de la formación continua de los profesionales y la mejora de este nivel de atención para atender a esta población, que cada vez es más grande.

Palabras-clave: Atención primaria de salud. Anciano. Bibliometría. Revisión+

INTRODUCTION

The worldwide contingent of people aged 60 and over has been growing rapidly. At the end of the last century, this population was estimated at 590 million individuals, and the projection for 2050 is 2 billion elderly people in the world. Although the aging of the world population is an achievement of humanity, it is also one of the greatest challenges, as it will bring about new paradigms and political, social, economic and health demands.¹

In this context, old age is associated with a higher prevalence of diseases, limitations and disabilities, characterized as a stage of life in which the use of health services tends to increase. Thus, it is essential

to discuss the aspects involving the elderly and primary health care (PHC), because in universal health systems, PHC is normally used as a gateway to receive the individual. Thus, it is necessary that this level of care be prepared to receive and treat this population.²

The assessment by Mendes should be noted,³ which allows us to conclude that PHC-oriented care systems, in relation to non-oriented systems, are:

1. more appropriate, as they are organized according to the health needs of the population;
2. more effective, since they are the only way to face the epidemiological situation of the predominance of chronic conditions and beneficially influence the population's health levels; and
3. of higher quality, as they emphasize health promotion and disease prevention.

Due to the growing importance given to research that focuses on the health of the elderly, there is an evident need for investigators to direct their studies towards new ways of caring for these individuals. Therefore, the state of the art of the subject can benefit from bibliometric studies, given that this type of analysis helps to guide productive areas and scholars, journals and institutions that stand out in a certain subject or related areas, and frequently most cited works.⁴

Bibliometrics can be defined as a quantitative and statistics-based technique for measuring the production and dissemination of scientific knowledge.⁵ Historically, this type of analysis, coming from information science, allows measuring the impact and visibility of certain authors, the institutions active in the subject and the source of information used. Thus, it promotes the mapping of a particular area of knowledge and makes it possible to identify consolidated theories and methodologies, which favors decision-making by researchers.^{4,6}

Accordingly, the aim of this study was to carry out a bibliometric analysis of the scientific production indexed by the Web of Science database regarding aspects involving the elderly and PHC.

METHODS

The study design consisted of an exploratory descriptive analysis of the bibliometric review type. For data analysis, the three basic procedures followed are listed below.⁷

1. Definition of the database and criteria to be used in data collection
2. Data collection
3. Representation and analysis of these data

Koskinen et al. warn about the selection of the database to be used, as this choice must be compatible with the research objectives and the reach of the results.⁸ Thus, for this study, the ISI Web of Knowledge/ Web of Science (WoS) database was selected because it is academically recognized as one of the most important journal bases, in addition to being relevant and pioneering in the gathering of journals from more than one hundred areas of knowledge, including health.⁸

For data collection, the search period available in the database for full years (1945-2016) at the time of the study was used, to allow the replication or updating of this research without the need to perform it again from its beginning.

The terms used for the research belong to the Health Sciences Descriptors (DeCS): "aged*" (elderly*) and "primary health care" (PHC). Double quotation marks indicate the retrieval of the exact representation of terms with more than one word and asterisks refer to the possibility of retrieving the plural of descriptors.

The collection was carried out by searching for these terms in the item “topic”, which constitutes the title of the articles, abstracts and keywords of the researched documents. Articles from events or considered to be in book editions and chapters, as well as editorial material and letters, were excluded from the results. The search resulted only in final and complete works of articles and reviews.

The next step was to analyze the material by exporting the data to the HistCite bibliometric evaluation software. The following were organized: the trend of publications, the journals with the highest number of records, the authors with the highest number of publications, the number of articles distributed by the authors’ country of origin and the ten most cited articles worldwide, and also the ten most cited locally.

On the basis of the reading and analysis of the full text of each article present in the final selection, the main aspects addressed by the studies were compiled as a way to portray their central discussions.

As this was a bibliometric study, there was no need to submit this research project to the Research Ethics Committee. Still, we were committed to maintaining the ethical principles recommended for research of this nature, respecting the ideas, citations and referencing of the authors and their publications.

RESULTS

Although the bibliometric survey in Web of Science was carried out for the period 1945 to 2016, there were no publications prior to 1977. For this reason, the time space was changed for the results to 1977 to 2016.

In total, 700 articles were identified that covered the PHC related to the elderly, published in 313 different journals and written by 2834 authors, who were affiliated with 1138 institutions located in 61 countries. These studies used 19,745 references, with an average of about 28 references per article.

As for the evolution in the period of scientific production in the field of study on PHC related to the elderly, Figure 1 shows the distribution of publications and the exponential trend line, indicating the interest in the topic during the time studied.

In relation to the main journals that addressed the topic researched, Table 1 presents the list of the ten most representative in relation to the number of publications on the subject. The total number articles published in these journals was 161, which corresponded to approximately 23% of the total amount of 700 articles found. The scientific journal with the highest number of publications was the Scandinavian Journal of Primary Health Care, with 28 publications in the period, which was approximately 4% of the total articles.

Table 1 also shows the relationship between the number of citations and the number of articles published in each of the journals. Through this indicator, it was possible to obtain initial information about the impact of scientific papers identified in these journals on the total number of citations received. In this regard, the highest average of citations per article published on the topic was that of International Journal of Geriatric Psychiatry, which with 13 publications (2% of the total), had 374 citations, which increased its impact factor in terms of the subject studied, since the number of citations obtained by the journal with the publication of articles on cooperation networks can serve as an indicator of the relevance of journals with more publications on the subject.

Table 2 identifies the authors who had the most publications on the subject, their institutional affiliation and the institution’s country of origin. Among the authors with the most articles published on the subject in the Web of Science database were Dahlstrom, with 14 publications, and Alehagen, with 11. These authors worked in the same university, Linkoping University in Sweden.

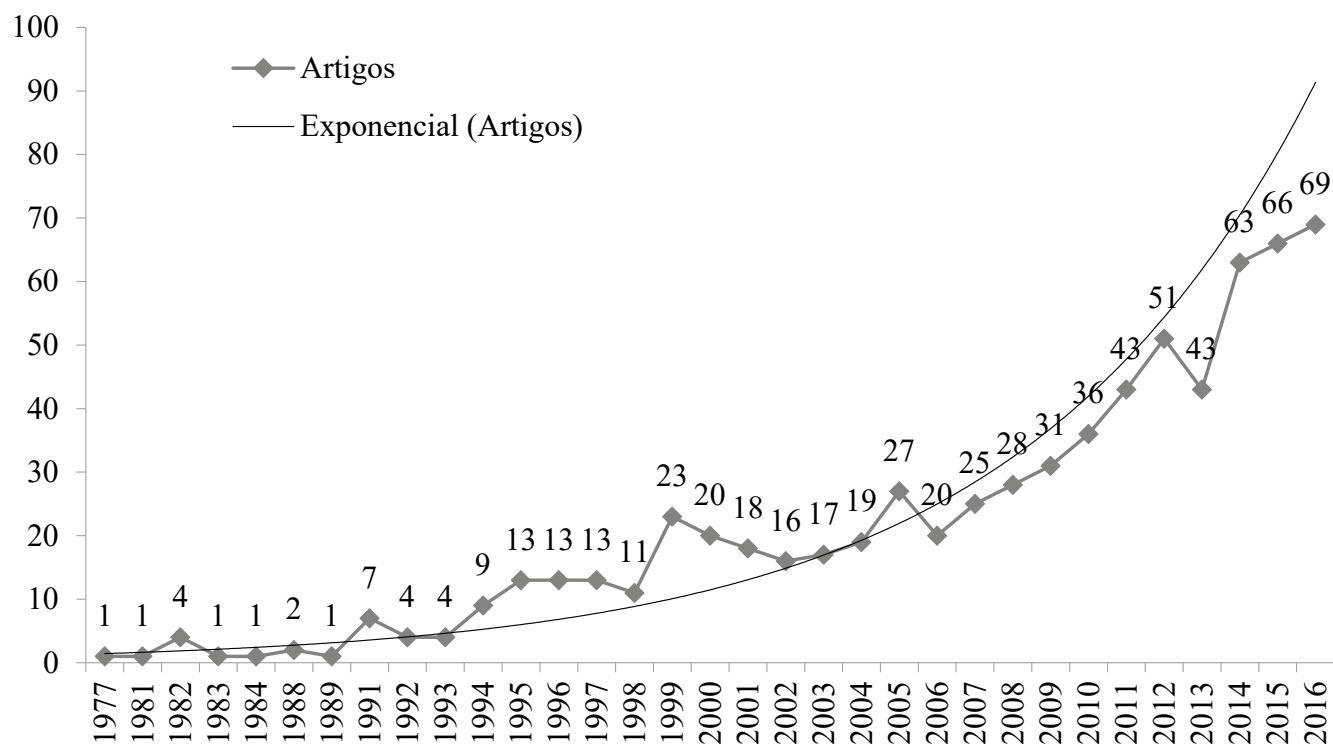


Figure 1. Distribution of worldwide publications on the elderly in primary health care (1977–2016). Trend line calculated by the exponential method.

Table 1. Journals with most articles on the subject and citations (1977–2016).

Journal	Number of articles	Citations	Citations/article
Scandinavian Journal of Primary Health Care	28	545	19.4
Primary Care	21	83	3.9
Family Practice	21	292	13.9
Ciência & Saúde Coletiva	18	60	3.3
BMC Health Services Research	15	85	5.6
British Journal of General Practice	14	229	16.3
International Journal of Geriatric Psychiatry	13	374	28.7
BMC Geriatrics	11	76	6.9
Age and Ageing	10	228	22.8
Cadernos de Saúde Pública	10	129	12.9

Table 2. Authors with the greatest number of publications, their affiliation and country (1977-2016).

Author	Number of articles	Affiliation	Country
Dahlstrom U	14	Linkoping University	Sweden
Alehagen U	11	Linkoping University	Sweden
Facchini LA	7	Federal University of Pelotas	Brazil
Midlov P	7	Lund University	Sweden
Thume E	7	Harvard University	United States
Hansson EE	6	Lund University	Sweden
Tomasi E	6	Catholic University of Pelotas	Brazil

It was observed that the most cited authors were affiliated with just five universities in three countries: Sweden, Brazil and the United States. Linköping University in Sweden stood out, with 25 publications — approximately 4% of the works — so that this is a relevant country in research on PHC for the elderly. Brazil appeared on the list with two universities, which accounted for 2% of the publications of the ten main authors in relation to the 700 articles found.

Table 3 shows the ten countries with the greatest scientific production in the field of PHC for the elderly. Brazil was in first place with 98 articles, followed by Sweden with 90, which indicates the importance of research in these countries on the subject.

Table 3. Number of articles by country of origin of authors' affiliation

Country	Number
Brazil	98
Sweden	90
Spain	79
United Kingdom	74
United States	75
Netherlands	36
Germany	25
Denmark	24
Australia	23
Norway	23

With regard to the most representative articles on the subject, our study identified two groups of articles:

1. those included in the Global Citation Scores (GCS), which are the most cited in all the Web of Science database; and
2. those included in the Local Citation Scores (LCS), which were the most cited in the selection group of this bibliometric study, demonstrated in Figure 2.

In addition to these groups, the relationship between the articles is presented, indicating, among them, which ones have a connection of citations — each “circle” represents an article whose number identifies the work (author(s), year), and each “arrow” (if any) shows the links between the articles, their direction pointing to the relationship between the work and a later study that cites it.

According to Figure 2, in this study, no connecting arrows were identified between the articles, which indicates that they do not have a citation relationship between them and that, in this study in this area of knowledge, there is no hub file or authority file on the subject at hand. Only the article by Nelzén et al.,⁹ is seen as an important article, which appears at the GCS and LCS levels.

On the basis of the reading and analysis of the studies included in the final selection, the main aspects involving the elderly and PHC treated by the articles were identified, and the percentage division of each aspect in relation to the total productions was determined: prevalence of health problems and examinations (3, or 15.8%); quality of life in community and institutions (4, or 21%); mental and psychosocial disorders (1, or 5.3%); falls and postural balance (3, or 15.8%); active participation of users in treatment (2, or 10.5%); accuracy of general practitioners (4, or 21%); drug use (1, or 5.3%) and demographic transition (1, or 5.3%).

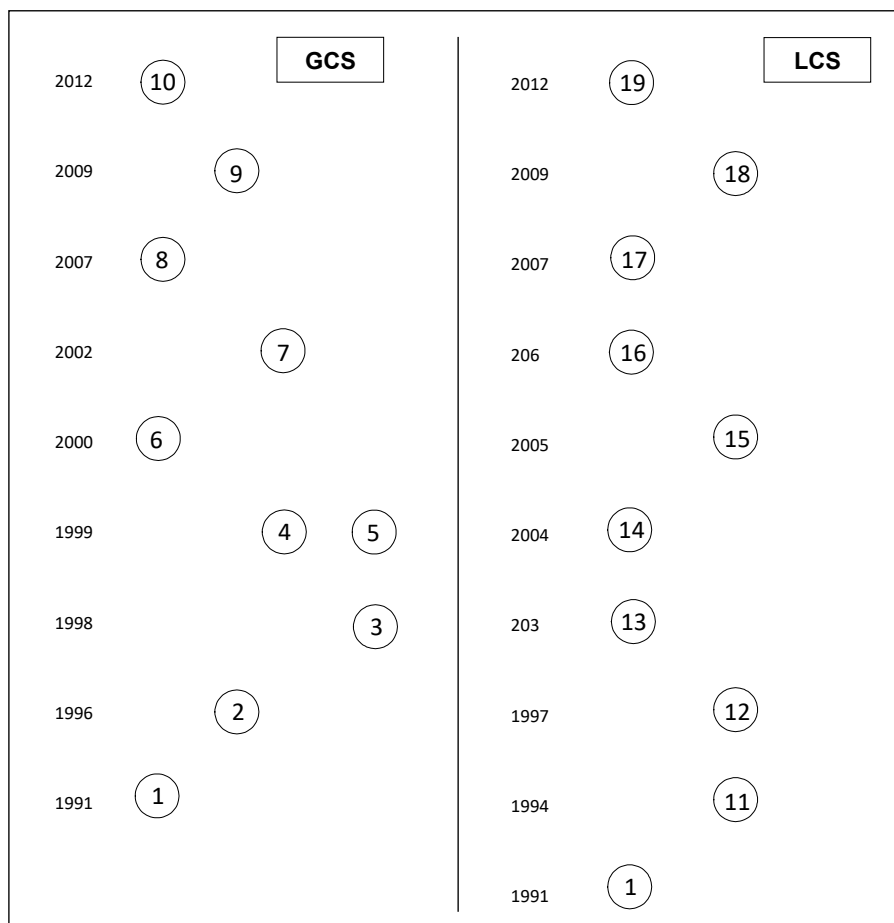


Figure 2. Ten most cited articles in the Web of Science (Global Citation Score) and ten most cited articles in the highlighted text group (Local Citation Score) among the selected set.

DISCUSSION

International interest in the topic under study began in the late 1970s, and until the mid-1990s the number of annual surveys on the subject was less than ten. The theme began to gain momentum in 1999, probably because it was proclaimed the International Year of Older Persons by the United Nations. Another peak of publications was in 2005, which coincides with the launch by the World Health Organization (WHO) of the Active Aging Policy.¹⁰ Since then, there is a growing trend of interest in the subject, although the annual quantity of publications did not reach 70.

The first study retrieved by HistCite in the most cited articles was that by Nelzén et al.,⁹ in 1991. As an early study on the subject, this work was also important because it was the only one retrieved that appeared in the GCS and LCS simultaneously. It dealt with the prevalence of leg ulcers in elderly patients and pointed out that the problem is underestimated, so that more attention is needed, especially when it involves men.

Alongside the study by Nelzén et al.,⁹ the works by Simeonova et al.¹¹ and Burns et al.¹² also developed the theme of the prevalence of injuries and tests. Simeonova et al.¹¹ saw that, although urinary incontinence was a prevalent condition that negatively influenced quality of life, particularly among the elderly, only a small number of women sought medical care. In turn, Burns et al.¹² found that a mammogram was done

less often in black women than white women. The authors emphasized the importance of visits to the PHC physician, although such visits did not increase how often a mammogram was done in black women.

The articles by Reijneveld,¹³ Nemet and Bailey,¹⁴ Huntley et al.¹⁵ and Al-Shammari¹⁶ addressed the quality of life of people in different communities. Reijneveld¹³ found that several immigrants reported poorer health and greater use of health care, especially among the elderly, highlighting that the pressure on various health services will increase in the future because of the relatively high growth of the needs of older immigrants. Nemet and Bailey¹⁴ on the other hand, suggested that programs that address the issue of familiarity can improve the situation of rural elderly people. The authors believe that health care should be incorporated as an activity of daily living, like other routine tasks in the community.

On the same topic, the literature review by Huntley et al.¹⁵ aimed to identify measures of multimorbidity suitable for use in studies on primary care, concluding that there is no consensus on the best way to measure and that different measures are appropriate according to the result of interest and the type of data available. Furthermore, Al-Shammari¹⁶ noted that the pattern of illnesses identified among the elderly in the PHC can change over time, and the physician should be aware of this change when periodically analyzing the available morbidity data.

The issue related to mental and psychosocial disorders was addressed in the studies by Gallo and Lebowitz¹⁷ and Midlöv et al.¹⁸ The authors assessed the main disorders of adult life and stated that as people age, care for the mental conditions of the elderly should require more attention to minimize disability and the use of health services that these disorders demand, as well as improving quality of life. The authors also drew attention to the need to integrate mental health care into primary care, for the early detection of problems.

Midlöv et al.¹⁸ analyzed whether educational outreach visits to general practitioners could affect the prescription of benzodiazepines and antipsychotics for the elderly, pointing out that after the visits, there was a decrease in the prescription of these medications in the active group and that participating physicians generally agreed with the importance of this education for their work and for improving knowledge.

Postural balance and falls, important items in the health of the elderly, were reported in the studies by Stalenhoef et al.¹⁹ and Hansson et al.²⁰ The former determined the predictive value of risk factors for recurrent falls, namely abnormal postural balance, two or more falls in the previous year, low scores for hand grip strength and depressed mental state.

Hansson et al.²¹ in 2004 investigated whether specific rehabilitation for patients with dizziness has any effect on balance, suggesting that training has positive and lasting results. Another study by Hansson et al.²⁰ studied the diagnostic panorama of a PHC center with a physical therapist specializing in dizziness and demonstrated that, in general, the applied inventory was not correlated with any measure of balance. The study, although little about PHC, shows that the diagnosis of dizziness can qualify health and help avoid falls, which can be a physical and social complicating factor for the elderly.

The review by Pialoux et al.²² looked for validated screening instruments to measure the frailty of the elderly in the area of PHC. The conclusion pointed to the difficulty in showing which tool is the best for the assessment of frailty in the elderly in the PHC and the need for further studies.

Regarding the active participation of patients, Bastiaens et al.²³ explored the opinions of people over 70 years old in involvement in their PHC, showing that the desire to be involved in decision-making is highly heterogeneous, requiring a custom approach.

Regarding the accuracy of general practitioners' diagnoses, Mitchell et al.²⁴ assessed the rate of true and false, positive and negative diagnoses of depression in primary care, and observed that for every

hundred unselected cases seen in PHC there are more false positives than negatives of depression or identified cases. In turn, Olofsson et al.²⁵ examined the ability of PHC physicians to accurately diagnose heart failure. The authors concluded that older patients in PHC have a confirmed diagnosis of heart failure in less than half of the time, and that this is more notable in females.

The studies by Bjerrum et al.²⁶ and Bregnhøj et al.²⁷ addressed the use of medications. Bjerrum et al.²⁶ analyzed the prevalence of potential drug interactions and identified that one-third of the population was exposed to polypharmacy and 15% were exposed to drugs with a risk of harmful interaction, which increases with age, pointing to the need for general practitioners to pay attention to these dangerous interactions to minimize the resulting problems as much as possible.

Bregnhøj et al.²⁷ evaluated the effect of a combined or single educational intervention on the prescribing behavior of general practitioners. Medication adequacy improved in the combined intervention group but not in the single intervention group, demonstrating the need for continuing education of general practitioners for better drug dispensing in PHC.

The demographic transition was only addressed in the study by Chaimowicz,²⁸ which aimed to analyze the current characteristics and perspectives of the demographic and epidemiological transition processes in Brazil. According to the author, although it is estimated that the proportion of elderly people is expected to double by 2050, chronic degenerative diseases and mental disorders have already determined the massive use of health services today. It is up to society to expand the debate on the demographic transition and its consequences for the health system, seeking alternatives that can minimize its negative impacts.

Finally, it is suggested that bibliometric surveys be carried out in other databases so that there is a comprehensive review of studies on this topic, since the present research had as a limitation the use of only one journal database.

In addition, it is noteworthy that the small number of articles found can be explained by the non-use of comprehensive descriptors related to PHC, such as “primary health care” and related ones. This is justified because, in different countries, the health system adopted may have another administrative organization and different names related to PHC. Even when systems are universal, they may not often use this type of descriptor. Thus, we observed that it would be interesting to include the descriptor “primary health care” in future studies, as this would allow for a greater scope of research on the subject and also the strengthening of PHC.

CONCLUSION

In this study, there was a small number of works on aspects related to the elderly and PHC in the database researched, given that in a time frame of 71 years, only 700 articles were registered. In addition, in the ranking of the ten countries that published the most on the subject, the majority of studies carried out were in European countries, emphasizing the need for scientific production in other universal health care systems. Furthermore, in Latin America, only Brazil appears on this list, which indicates the need for quality research on the subject in other Latin American countries.

Thus, it was observed in the studies examined that one of the common points referred to problems such as non-compliance with health care for the elderly population, both by professionals and by the elderly themselves, which points to the dehumanization of the elderly and the consequent lack of prioritization of this age group in the context of health. With the aging of populations, it is essential that this issue be prioritized, expanding the debate on the demographic transition and its consequences for the entire

population and aiming at alternatives that can minimize the impacts and offer new paradigms for products and services aimed at the elderly population, especially in primary care, gateway to the entire health service and the main social link between the elderly and quality of life.

CONFLICT OF INTEREST

None to declare.

AUTHORS' CONTRIBUTIONS

DGW: formal analysis, conceptualization, methods, writing – first draft, writing – revision and editing. BFB: formal analysis, conceptualization, methods, writing – first draft, writing – revision and editing. CDPS: formal analysis, conceptualization, methods, writing – first draft. DNSJ: formal analysis, conceptualization, methods, writing – first draft. EWGB: formal analysis, conceptualization, methods, writing – first draft. COL: project administration, conceptualization, supervision, validation, writing – revision and editing. LKBM: project administration, conceptualization, data curation, research, methods, validation, writing – revision and editing. IB: project administration, conceptualization, supervision, validation.

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