



Unregulated health care workers in the care of aging populations: Similarities and differences between Brazil and Canada

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Abstract

Introduction: The world's population is rapidly aging. Unregulated health care workers (UHCWs) are emerging as a potentially important workforce in the care of older adults.

Objective: A review was conducted to identify the activities of UHCWs with respect to contributions and limitations.

Methods: A systematic integrative literature review was conducted using online databases (LILACS, PubMed, EMBASE, CINAHL, and grey literature). The inclusion criteria were as follows: (i) description of UHCW activities related to older adults; and (ii) description of UHCW activities performed in Brazil or Canada.

Results: Eleven papers were included in this review. In both countries, UHCW activities included health promotion, mental health care, and rehabilitation. In Brazil, UHCWs performed integrated care, while in Canada UHCWs performed personal care and housekeeping.

Conclusion: These results highlight the potential and limits of UHCWs who provide care for the aging population. Such information is important to health and social policy making and household decision making.

Keywords: Aging; unregulated health care workers; older adults; aging workforce; global health

Introduction

The world's population is aging very quickly in both developed and developing countries [1]. Globally, 8% of the world's population is aged 65 years and over and by 2030 this percentage is expected to increase to 12% [2]. In many countries the number of the oldest old (≥ 85 years of age) is also increasing. It is the first time in the human history that people aged 65 years and over will outnumber children under 5 years of age [3]. Although the age distribution represents a triumph of development in health, economy,

education, and social development, the age distribution also presents many challenges for families and health care systems.

The demographic changes in the world's population are accompanied by an epidemiologic transition from the dominance of infectious diseases to non-communicable diseases or chronic conditions, such as stroke, hypertension, cancer, chronic obstructive pulmonary disease, asthma, and diabetes. There is also an accompanying increased demand for health care services and long-term care, and

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Received 21 January 2015;

Accepted 6 May 2015



all of the attendant health care costs [4]. In addition, population aging is associated with an aging workforce and shifts in dependency ratios of elders-to-productively active persons. In many countries, a shortage of health care workers has been reported, as well as concerns related to the provision of health care for the aging population [5]. The USA Census predicts that by 2050, 19% of the total USA workforce will be aged 65 years or more. Presently, the average age of a nurse in the USA is 50 years, and by 2020 approximately 50% of all registered nurses will reach retirement age [6].

Both developed and developing nations are facing challenges caused by the aging health care workforce. The ratio of the aged workforce population in developed countries is relatively higher than developing countries; however, by 2020 the proportion of aging and retirement in the workforce is expected to increase in developing nations as well. In 2010, workers over 55 years of age in the labor force as a proportion of the total workforce increased from 1 in 5. It is forecasted that by 2030 that the ratio will increase to 1 in 4 [7].

As a result of the increase in the aging population and the shortage of health care professionals, there is an escalation in the demand for unregulated health care workers (UHCWs) to provide care for adults 65 years of age or older with chronic diseases and complex conditions at home and in long-term care facilities [8]. UHCW is defined here as “paid workers who are neither registered nor licensed by a regulatory body and have no legally-defined scope of practices (e.g., resident care aides, home support workers, and activity aides”[9]).

The purpose of this study was to describe the activities of UHCWs related to older adults. In this discussion, a comparison will be made between Brazil and Canada. These countries were chosen for this discussion for several reasons, including similarities between both countries and the expertise of the team composed of Canadian and Brazilian researchers which has experience with health care workers. There are many similarities between Brazil and Canada; specifically, the countries are large and ethnically diverse, have a democratic governance, a stable economy, and multicultural diversity, including indigenous populations and universal health systems that cover the entire population. In terms of differences, Brazil is a populous middle income country located in South America, although

Canada is a developed, under-populated, high-income country located in North America.

The context

Aging process in Brazil and Canada

Brazil is the fifth largest country in the world, both in terms of territory and population. The current population of Brazil is estimated to be approximately 201 million [10]. Like Brazil, Canada is a geographically-large country with the second largest land mass in the world; however, the current population of Canada is estimated to be approximately 35 million [11], which is nearly one-sixth of the Brazilian population. In the 1940s, 5% of the total population in Brazil was more than 60 years of age, increasing to 8.6% in 2011. During the 1920s, approximately 5% of the Canadian population was more than 65 years of age, increasing to 13.8% in 2008 [12]. Estimates for 2050 indicate that 40% and 22.5% of the Canadian and Brazilian populations respectively will be older than 65 years of age [13].

In the past 50 years, Brazil has experienced rapid growth in its aging population [14], although the Canadian aging process, like other European countries, has been considered more protracted and gradual. As an example, the same demographic aging that took more than a century in France will occur in two decades in Brazil [15].

The aging process itself is a biologic reality and each society conceptualizes old age in its own way. In most developed countries, like Canada, a person is considered old when they reach 65 years of age, although in developing countries, like Brazil, the cut-off for old age and retirement is 60 years of age [16]. This difference between Brazil and Canada with respect to the definition of aging is relevant for planning health care delivery in these two countries [17].

Impact of the aging population on the health care systems in Canada and Brazil

Many argue that the aging of health care workers will create an additional challenge to the sustainability of health care in Canada [18]. Although there is a shortage of physicians with expertise in the care of older adults, geriatricians represent only a small piece of the health care workforce for the aging population. In Canada there are 75,000 licensed



physicians, 360,000 registered nurses, 35,000 social workers, 30,000 pharmacists, 17,000 physiotherapists, 13,000 occupational therapists, and 10,000 dietitians. In the Canadian province of Ontario (the province with approximately 38% of the Canadian population) there are also approximately 90,000 personal support workers employed in the health care sector [19]. To date, the health services in Canada have concentrated predominantly in the acute care sector, but upcoming needs will mostly occur outside the hospital setting. The home and community care workforce (nurses, rehabilitation professionals, and UHCWs) will require growth and further adaptation and development to include new skills to fulfill the constantly growing health care needs and demands of older adults [8].

Thus, there is increased attention on the expected impact of the aging population in Canada on the health care system [20]. Older adults are responsible for approximately 50% of all health care costs. In 2009–2010, older adults accounted for 40% of acute hospital stays, even though older adults constitute only 14% of the population. The usage rates for inpatient services, including acute, rehabilitation, and complex continuing care, were higher for senior compared to non-senior adults. Senior adults also visited their family physician twice as often as non-senior adults [21].

In Brazil, as in Canada, costs of health services for the older adult population are growing fast. Older people are the largest consumers of health services, and hospitalizations are more frequent among the elderly than in younger adults [22].

The health care system in Canada is for the most part publicly funded and administered on a provincial or territorial basis within guidelines established by the federal government. Canadian citizens or residents are provided with essential medical services, including access to hospital and physician services by the publically-funded systems, regardless of employment, income, or health status [23]. The system is based on the five principles of the 1984 Canada Health Act, as follows: (1) comprehensiveness (provinces must provide medically-necessary hospital and physician services); (2) universality (all residents are covered on uniform terms and conditions); (3) accessibility (access to services is guaranteed and not impeded by user charges or extra billing, even though geography is a challenge in the North); (4) portability (protection for all residents when they travel within Canada, across all

provinces and territories); and (5) public administration (all health insurance administration is performed by the government on a non-profit basis). The Canadian Health System (as it is often referred to, although it is constitutionally a provincial or territorial responsibility) is predominantly funded via taxation, from personal and corporate income taxes, sales taxes, payroll levies, and lottery proceeds. Two provinces, Alberta and British Columbia, impose health care premiums. These premiums are not rated by risk and prior payment is not a precondition for access to treatment [24].

The Brazilian Health System is a mix of public and private services financed mainly by private funds. The health system is divided into three sub-sectors: (i) the Unified Public Health System, with services financed and provided by the government at the federal, state, and municipal levels, including military health services; (ii) private (for-profit and non-profit organizations), financed by public or private funds; and (iii) private health insurance, with different forms of health plans, varying by insurance premiums and tax subsidies. Both public and private services are interconnected, and the Brazilian population can access any of these sectors according to their economic condition [25]. Approximately 80% of older adults in Brazil use the Brazilian public health system. According to the Institute for Supplemental Health Studies, the high financial and social costs and low efficiency and effectiveness of institutional care (inpatient) occurred after the implementation of the Older Adults Program in 2003, which led to government initiatives to provide care to the aging population in home and community care environments and in full institutional environments, such as nursing homes [26]. One of the government initiatives was to include UHCWs more effectively in the older adult program.

Together with such shifts to the home and community as the location of care for older adults, it is apparent that the role of UHCWs is growing and becoming quite large, but it is presently not well-defined or understood. This paper aims to present and discuss the similarities and differences in the roles of UHCWs within the care sectors for aging populations in Brazil and Canada.

Methods

A systematic integrative review of the literature was performed. Integrative reviews are one of the methods to produce



evidence-based research. The method includes studies with diverse methodologies (i.e., experimental and non-experimental research) and can play an important role in evidence-based practice [27]. Integrative review is defined as “a specific review method that summarizes past empirical or theoretical literature to provide a more comprehensive understanding of a particular phenomenon or health care problem” [28]. The current review included the following steps adapted from several resources [29, 30]: (1) selection of the research question; (2) information source and search strategy; (3) definition of inclusion and exclusion criteria of the studies; (4) identification of relevant studies and data extraction; (5) synthesis; and (6) critical analysis of the findings.

Research question

What are the similarities and differences between UHCW activities with older adults in Brazil and Canada?

Information source and search strategy

A systematic literature search in electronic databases was conducted to examine all interventions with participation of UHCWs with aging populations in December 2013 and updated in March 2014 by two of the authors (MV and ENO). Papers in English, Spanish, Portuguese, and French that reported any description of practices and competencies of UHCWs with aging populations were considered. The electronic search included the following databases: LILACS; LATINDEX; PUBMED (1995–2014); CINAHL (1995–2014); and EMBASE (1995–2014), and as much grey literature that could be found. In addition, to maximize the potential of finding relevant information related to the topic, an internet search was conducted using Google, hand search, and relevant government websites to find more information about the scope of practice of UHCWs with older adults in Canada and Brazil.

The search was conducted by an experienced librarian. A final search strategy was developed for the PUBMED database and was adjusted for the other databases. These search strategies are available from the authors on request.

The search included several terms frequently used to describe UHCWs in Canada and worldwide, such as home care workers, care workers, personal support workers, and direct care workers. Additionally, for the LILACS and

LATINDEX databases, the Portuguese equivalent term, “Agente Comunitario de Saude,” was used. Terms related to the aging population and health care for seniors, elderly, and old adults were also included.

Inclusion and exclusion criteria

Studies to be considered for full review were required to meet the following inclusion criteria: (i) describe UHCW tasks or activities related to the care of the older adults; and (ii) describe the work performed by UHCWs in Brazil or Canada. Papers that included UHCWs, but did not have a description of activities related to the aging population were excluded.

Identification of relevant studies and data extraction

One of the authors (MV) conducted paper screenings and extracted study details between November 2013 and March 2014. Potential relevant studies were first identified by screening the article titles and abstracts. Articles that were considered relevant after title and abstract screenings were examined in full text for final consideration. The following information was included in the data extraction form: authors; title; year of publication; citation; origin of the studies (country); setting; study objectives; and services provided by UHCWs to the older adult population.

Data analysis

Data analysis was performed based on the results of the data extraction form. The information was integrated based on the similarities of meaning of UHCW activities. The data collected were coded, then categorized in themes [31].

Results

The search of the electronic databases identified 582 publications; 352 publications remained after duplicate articles were removed. After the initial title and abstract review, 91 articles remained. After a full-text review process, 80 articles were excluded. The reasons for exclusion were as follows: (a) not relevant to the current review topic ($n=5$); (b) not conducted in Brazil or Canada ($n=69$); and (c) articles not available through the library ($n=6$). Ultimately, 11 studies were included in the current review. The detailed results of the identification process and phases of the study were based on the PRISMA four-phase flow diagram [32] and are outlined in Fig. 1.

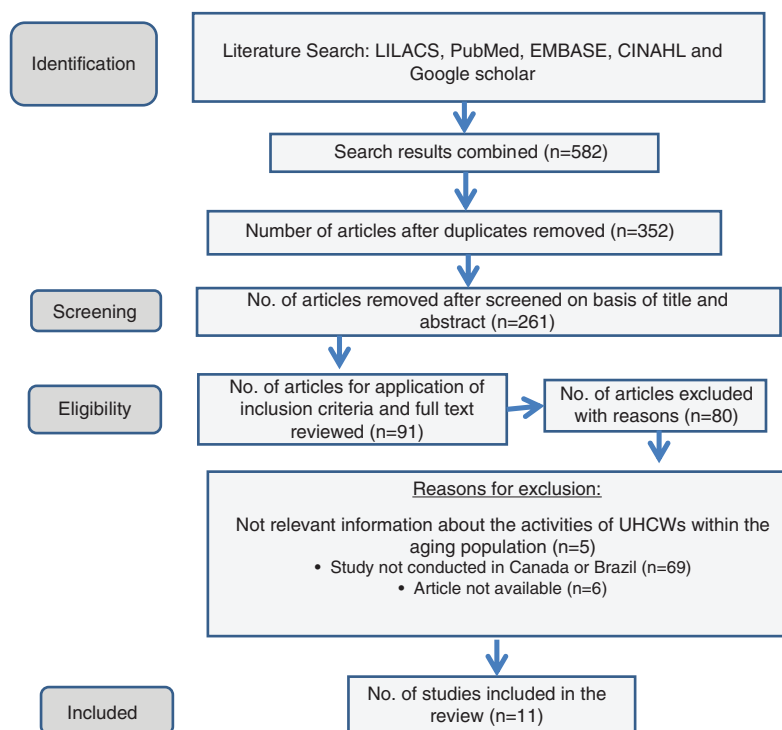


Fig. 1. Flow diagram on phases of review process based on PRISMA flow Diagram.

Study characteristics

Table 1 summarizes the main characteristics of the included studies, such as publications by author and year, research aims, activities of UHCWs, and country of origin. Overall, 11 studies described UHCW activities related to the care of aging populations. Seven of the studies were conducted in Brazil and four studies were conducted in Canada.

Research focus: Of the studies conducted in Brazil, one study described the concepts and attitudes towards aging [33], one study described an epidemiologic profile of the older adults in a primary health care center/community [37], one study regarding UHCW training in medication use [41], one study was a guideline of the Brazilian Ministry of Health describing the activities of UHCWs for the aging population within primary health care settings [34], another study described physical activities for the older adults with the support of UHCWs [35], and two studies were related to the intersection between the work of physiotherapists with community health agents in the

context of the health care integration in primary health care settings [40, 42].

Of the four studies from Canada, one was in the field of mental health and dementia [36], and the other three were about physical rehabilitation with a focus on home exercises to improve mobility, falls prevention, and health promotion activities [38, 39, 43].

Health care activities of UHCWs in the context of aging adult populations:

Health care activities provided by UHCWs to older adults focus on the following themes: integrated care; health promotion; mental health; light housekeeping and personal care; and physical rehabilitation.

- i) Integrated care: Four studies in Brazil have reported that UHCWs are core agents in the accomplishment of specific health policies and responsible in assisting older adults to schedule medical appointments and that they reinforce medical and nursing treatment [33, 34, 37, 40]. UHCWs are also responsible to give



Table 1. Selected studies about UHCWs' activities related to the care of older adults

Study	Country	Research Aim	Activities
Bezerra et al. [33]	Brazil	To assess the main concepts related to the aging process among UHCWs	<ul style="list-style-type: none"> • Making medical appointment; reinforce medical and nursing orientation regarding medication and treatment • Core agents in the accomplishment of specific health policies
Brasil. Ministerio da Saude [34]	Brazil	Practical guide for UHCWs	<ul style="list-style-type: none"> • Orientation about immunization, nutrition, and physical activity • Information about alcohol consumption, smoking, and other drugs; respiratory problems, hypertension, diabetes, obesity, prevention of sexually transmitted diseases (STD) • During the home visit, UHCWs should observe signs of elderly abuse, risks of falls at home, family relationships, housing conditions, education, and occupation • To identify if the elderly needs care related to personal care (bathing, eating, etc.) and social participation and community integration (transportation), oral care (orientation about cleaning and dentist appointment every 6 months) • Orientation about government benefits for older adults, pensions, and retirement plans; mental health and promotion of ocular health
Coelho et al. [35]	Brazil	To describe the implementation of physical activities for elderly with the primary health care settings with the support of UHCWs	<ul style="list-style-type: none"> • Health promotion and physical activities in the community (walking)
Forbes et al. [36]	Canada	To critique the nature of rural dementia care from the perspectives of the dementia care networks: persons with dementia, their family caregivers, and home care providers	<ul style="list-style-type: none"> • Care for people with dementia
Garcia and Saintrain [37]	Brazil	To identify the epidemiologic profile of the elderly people in the family Health Program in Ibicuitinga, Ceará State, in 2005	<ul style="list-style-type: none"> • The role of the UHCWs is beyond health and is the front door for social policies addressing disadvantaged population
Johnson et al. [38]	Canada	Outcome-evaluation study to examine extent of exercise compliance and functional improvement in home-care clients receiving the HSEP over a 4-month period	<ul style="list-style-type: none"> • Light housekeeping, personal care/bathing, laundry, meal preparation, and exercise
Johnson et al. [39]	Canada	To develop a profile of UHCWs; to examine the level of empowerment and to evaluate the health knowledge and awareness related to seniors	<ul style="list-style-type: none"> • Personal care (bathing), meal preparation, friendly visiting, respite, and/or housekeeping • Aiding with activities of daily living, motion exercises, and confidence
Loures and Silva [40]	Brazil	To review the intersection between the work of the physiotherapist with community health agent in the context of the integration of their performances in primary health care	<ul style="list-style-type: none"> • To contribute to the performance of the health care system in terms of integrality and health equity; to assist in the management and prevention of chronic diseases • To identify patients who need physiotherapy and refer the patients to a professional
Marodin et al. [41]	Brazil	To describe an intervention to improve the knowledge of UHCW about medication use	<ul style="list-style-type: none"> • Health promotion, disease prevention, and linking the population with the primary health care strategy



Table 1. (continued)

Study	Country	Research Aim	Activities
Ribeiro et al. [42]	Brazil	Research action to analyze the work interaction between physiotherapy and community health workers (CHWs)	• UHCWS can identify barriers to access health care by elderly (transport and locomotion); support in health promotion group for elderly
Tudor-Locke et al. [43]	Canada	To provide a rationale and description of the development and formative evaluation of the Home Support Exercise Program prototype	• Exercise education and health promoting activities

information about government benefits for older adults, including pension and retirement plans.

- ii) Health promotion: Six studies referred to health promotion as a UHCW activity in the care of older adults. Five of these studies were from Brazil [34, 35, 40–42] and one from Canada [43]. According to the Brazilian Ministry of Health guideline for community health workers, UHCWs have a crucial role in all health promotion strategies, such as immunizations, nutrition, physical activity, prevention of cardiovascular problems, and sexually transmitted diseases. UHCWs also can assist in preventing older adult abuse, risks of falls at home, oral care, and ocular care [35]. Coelho, Oliveira, and Canuto (2004) reported the importance of UHCWs in supporting and assisting the practice of physical activities in the community for older adults with the supervision of a physical education professional [35]. Loures and Silva (2010) and Marodin et al. (2013) referred to UHCW roles in assisting the management and prevention of chronic diseases [40, 41]. One Canadian study reported that UHCWs have the skills to develop health promotion activities [43].
- iii) Mental health: One Canadian study described the role of UHCWs in the care of patients with dementia [36] and proposed that an effective approach for UHCWs is to focus on the person instead of the symptoms.
- iv) Light housekeeping and personal care: Two Canadian studies mentioned that UHCWs had in their scope of activities light housekeeping and personal care, such as bathing and helping their clients with laundry and meal preparation [38, 39]. In contrast, the Brazilian Ministry

of Health guideline states that UHCWs should be able to identify older adult needs related to personal care, but do not mention that it is a responsibility of the UHCWs [34].

- v) Physical rehabilitation: Overall, five studies reported that UHCWs have the skills to support and assist home exercise programs for older adults. The three Canadian studies focused on a home exercise program to improve mobility, balance, confidence, and well-being [38, 39, 43]. Two Brazilian studies described the engagement and support of UHCWs with physiotherapists [40, 42]. Ribiero et al. (2007) conclude that UHCWs have the potential to support the work of physiotherapists in primary health care [42]; however, they have limited knowledge about physical rehabilitation programs in the community as their role is usually restricted to assist physiotherapists in neurologic rehabilitation, especially in stroke patients. UHCWs are able to identify barriers to access of health care by the elderly (e.g., transport and locomotion) and support health promotion activities for older adults. The other Brazilian physiotherapy study mentioned that UHCWs have an important role in identifying older adults that need physiotherapy and refer them to the appropriate licensed professional [40].

Discussion

The role of UHCWs in the care of older adults

Narrative reviews of the literature show that overall the domains of UHCW practice with aging populations in Brazil and Canada have similarities and differences. Five themes were associated with their scope of practice: integrated care;



health promotion; mental health; light housekeeping and personal care; and physical rehabilitation. This review shows that although mental health, health promotion, and rehabilitation are included in the scope of practice of the UHCWs in both countries, integrated care is mainly developed in Brazil and light housekeeping and personal care are activities done by UHCWs in Canada.

Integrated care: Four Brazilian studies state that UHCWs play an important role in the integration of health care and the wider 'health' system. They have a key role in improving the adherence of treatments, assisting in referrals and linking policies or programs. Several studies, including a Cochrane systematic review, highlighted that many low-middle and high income countries have introduced, or are in the process of introducing, UHCWs into their health system to increase access and integration of programs and interventions [44, 45]. North Wales in the United Kingdom has conducted a trial to test the potential of the Brazilian community health workers model to improve the integration of the health care and to address the fragmented health care approaches currently developed in the UK [46]. In the USA, community health workers act as a liaison or link between health and social services to facilitate health care access, and improve health equity and cultural competence of the health system [47]. UHCWs are also referred to as a potential best navigator and broker between individuals and the health care system. They are trusted members of the community and usually live in the same community/area as their clients and share the same "life experiences," including the barriers of access health services or programs. For example, community health workers in Benton County, Oregon, USA, have the role of a clinical health navigator as one of their functions in the scope of practice [48], as in Brazil [34].

Health promotion: Most of the literature on health promotion activities of UHCWs originates from Brazil. Health promotion is one of the main roles of community health workers in the country. Health and social policies interact under the pillar of health promotion. Surprisingly, only one study in Canada has focused on the work of UHCWs in health promotion, despite the strong leadership of UHCWs in the history of health promotion. Health promotion began in the 1970s with

the release of the Lalonde report in 1974, entitled "A New Perspective on the Health of Canadians," which was followed by the creation of the Federal Health Promotion Directorate in 1978 [49]. Later, in 1986, Canada held the first International Conference on Health Promotion in Ottawa [50], which produced a strong and well-delineated Charter on Health Promotion.

The World Health Organization (WHO) defines health promotion as the process of enabling people to increase control over and to improve their health [50]. Hence, health promotion has the potential to be placed in the highest level of priorities in terms of preventing and maintaining health of aging populations. A recent article highlighted the role of UHCWs in Canada as health promoters capable of addressing health equity for immigrants and refugees experiencing marginalization. The authors also emphasize system navigation in the scope of practice of UHCWs and present an empirical case study with immigrants and refugees. The activities were related to the support of maternal and child health in Edmonton, Canada [51].

Mental health: Although it is well-documented that dementia is on the rise in older adults, only one Canadian study has referred to a role for UHCWs with dementia care. [reference?] The 2013 World Alzheimer Report stated that there is an increasing demand for long-term care for older people with dementia. According to the report, in high-income countries, dementia and cognitive impairment are the most important contributors to disability and dependence [52]. The World Health Organization has reported a Canadian Alzheimer/dementia death rate of 16 per 100,000 with age standardization in 2011, although in Brazil the Alzheimer/dementia death rate was 8.2 per 100,000 [53].

The Canadian study involving the work of UHCWs with people with dementia in rural settings showed positive and negative attitudes of UHCWs toward people with dementia. According to the study, the positive approach is preferred and focuses on the person instead of the symptoms, and the negative approach only provides physical care and neglects emotional care [36].

Light housekeeping and personal care: One difference between the work of UHCWs in Brazil and Canada



is related to personal care and housekeeping. In Brazil, the UHCW guidelines state that they should identify clients in need of housekeeping and personal care support, but it is not their role to accomplish these tasks. This is in contrast with UHCW roles in Canada. Indeed, the UHCW role in Canada includes activities that support client communication and personal hygiene, such as bathing, dressing/undressing, skin and oral care, meal planning, shopping and preparation, eating, hydration, elimination, sleeping, mobility, and activities associated with leisure and recreation [54]. The 2013 Pew Research Center Global Attitudes Project included the following question: “Who Should Bear the Greatest Responsibility for the Elderly?” [55]. This survey was conducted in 21 countries (with a total of 22,425 respondents) and examined global public opinion on the challenges posed by aging populations for the countries. Data from this survey showed that 42% of the Brazilian participants believe that older adult care is a family responsibility. In Pakistan, 77% of the participants had this perception. Data from the 2012 Portrait of Caregiver survey showed that 28% of Canadians provided care to someone who was at the end of life [56]. In countries, such as Brazil and Pakistan, with beliefs about family responsibility for elder care, it seems that personal care and housekeeping is not the responsibility of the UHCWs. Perhaps some explanations for these differences in tasks and responsibilities of the UHCWs in Brazil and Canada related to housekeeping and personal care can be explained by cultural, religious, geographic, or economic factors.

Physical rehabilitation: Overall in Brazil and Canada, UHCWs are involved in the rehabilitation of frail, older adults. The difference between their roles in these countries is the scope of their activities. It seems that in Canada, the role of UHCWs with physical rehabilitation is more defined as they perform specific tasks under the supervision of a regulated [licensed? registered?] healthcare professional. The Personal Assistant Guideline provides direction to clarify the boundaries of practice for UHCWs in British Columbia, Canada [57]. Their tasks are divided in two areas: (1) standard practice tasks; and (2) professional tasks delegated to a UHCW. For the first, UHCWs who have a relevant college certification or equivalent are authorized to perform personal care tasks routinely. For the

second area, regarding rehabilitation, it focuses on the need to be supervised by a community rehabilitation services therapist in the presence of a registered nurse supervisor. Usually, UHCWs perform rehabilitation tasks when the community rehabilitation therapists are not available or the physiotherapist in private practice may delegate tasks [57]. Some examples of delegated tasks include assisting clients to apply hot or cold packs, assist with ventilation equipment (such as nebulizers and inhalers), and assist clients to apply electrodes for transcutaneous electrical nerve stimulation. Another example of advances in rehabilitation tasks for UHCWs in Canada is the Home Support Exercise Program (HSEP) for frail, older adults developed by the Canadian Centre for Activity and Aging [38]. The HSEP is an evidence-based in-home exercise program consisting of 10 progressive exercises developed to enhance and maintain functional fitness, mobility, balance, and independence. The training for this program consists of a 4-h workshop that targets front-line service providers, caregivers, and family members or an 8-h workshop, which is a facilitator training that prepares educators, managers, or supervisors to deliver the HSEP workshop [58].

In Brazil, the role of UHCWs in physical rehabilitation is still in process, and mainly consists of identifying patients who need rehabilitation services and referral to physiotherapists [40, 42]. One possible reason for these differences between Brazil and Canada in terms of rehabilitation tasks for UHCWs is the regulation of the profession and the design of the rehabilitation system in Brazil. The federal regulation of all professions related to rehabilitation, such as physiotherapists and occupational therapists, states that there is no legal support for practicing physiotherapy as an assistant or technician [59]. This is one possible factor limiting UHCW activities regarding physical rehabilitation in Brazil.

Strengths and limitations of the study: This review is the first to compare the role of UHCWs with older adults in middle- and high-income countries, each with different health care systems. This review has provided a picture of UHCW activities in Brazil and Canada. The search strategy was enhanced by exhaustive search of the grey literature from both countries, which provided a wider view of the topic and a more optimal collection of relevant information.



Although every endeavor was made to obtain all materials considered relevant to the research question, there is a possibility that some grey literature from relevant websites was not included. The search strategy for this review found a reasonable number of studies, but detailed descriptions of UHCW activities within the growing aging population were scarce.

Conclusions

This integrative literature review was performed to describe and compare the scope of activities of UHCWs in Brazil and Canada with older, aging populations. UHCW activities in Canada and Brazil were similar; specifically, health promotion, mental health care, and physical rehabilitation were included. UHCWs are also involved in integrated care in Brazil, and in personal care and light housekeeping in Canada. Further work is needed to reach international consensus on core areas for community-based care of older, aging populations and for working towards a greater understanding of the role of UHCWs, taking into consideration the health care system, culture, and other issues. We believe that this review is a good starting point by bringing attention to the role of UHCWs in caring for the elderly and by contrasting the roles of UHCWs in two countries.

Conflicts of interest

The authors declare no conflict of interest.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

References

1. National Institute on Aging. Why population aging matters: a global perspective. 2007. [accessed 2014 January 22] Available from: www.nia.nih.gov/sites/default/files/WPAM.pdf.
2. Population Division DUN. Magnitude and speed of population ageing. World Population Ageing 1950–2050. Retrieved from: www.un.org/esa/population/publications/worldageing19502050/pdf/80chapterii.pdf. 2014.
3. World Health Organization. Are you ready? What you need to know about ageing. Retrieved from: www.who.int/world-health-day/2012/toolkit/background/en/. 2012.
4. Canadian Institute for Health Information. Seniors and the Health Care System. What Is the Impact of Multiple Chronic Conditions? Seniors and the Health Care System. What Is the Impact of Multiple Chronic Conditions? Retrieved from: https://secure.cihi.ca/free_products/air-chronic_disease_aib_en.pdf. 2011.
5. Global health workforce alliance, World Health Organization. A universal truth: No health without a workforce. Executive Summary. Retrieved from: www.who.int/workforcealliance/knowledge/resources/hrhreport_summary_En_web.pdf. 2013.
6. Heidkamp M, Mabe W, DeGraaf B. The public workforce system: serving older job seekers and the disability implications of an aging workforce. New Brunswick, NJ: NTAR Leadership Center, Rutgers University; 2014.
7. Ranjani K. The aging workforce: trends, factors, retention strategies & policy implications. [accessed 2014 February 28]. Available from: www.hr.com/en/app/blog/2012/01/the-aging-workforce-trends-factors-retention-strat_gxmjrj4uf.html.
8. The Conference Board of Canada. Future care for Canadian seniors – why it matters. 2013. [accessed 2014 January 22]. Available from: www.advancecareplanning.ca/media/100009/conferenceboardreport_acppg6.pdf.
9. The College of Registered Psychiatric Nurses of British Columbia. Delegating to unregulated care providers. 2011. Available from: www.crpnb.ca/wpcontent/uploads/2011/02/unregulated_providers.pdf.
10. World Population Statistics. Population of Brazil 2014. [accessed 2014 March 11]. Available from: www.worldpopulationstatistics.com/population-of-brazil-2014/.
11. World Population Statistics. Population of Canada 2014. [accessed 2014 March 11]. Available from: www.worldpopulationstatistics.com/population-of-canada-2014/.
12. Canadian Institute for Health Information. Health Indicators 2010. Ottawa: CIHI; 2010.
13. Pew Research Centre. Attitudes about aging: a global perspective. Chapter 2. Aging in the U.S. and Other Countries, 2010 to 2050. [accessed 2014 March 11]. Available from: www.pew-global.org/2014/01/30/chapter-2-aging-in-the-u-s-and-other-countries-2010-to-2050/.
14. Palloni A, Peláez M. History and nature of the study. In: Lebrão ML, Duarte YA, organizers. KNOW – health wellness and aging: the SABE project in the municipality of São Paulo – an initial approach. Brasília: Pan American Health Organization; 2003. pp. 15–32.
15. World Health Organization. Global health and aging. 2011. Available from: www.who.int/ageing/publications/global_health.pdf?ua=1.



16. World Health Organization. Definition of an older or elderly person. Proposed Working Definition of an Older Person in Africa for the MDS Project. [accessed 2014 March 11]. Available from: www.who.int/healthinfo/survey/ageingdefnolder/en/.
17. Paskulin LMG, Aires M, Goncalves AV, Kottwitz CCB, Morais EP, Brondani MA. Aging, diversity, and health: the Brazilian and the Canadian context. *Acta Paul Enferm* 2011;24(6):851–6.
18. Bourgeault I. The role of immigrants care workers in an aging society: the Canadian context and experience. [accessed 2014 January 22]. Available from: http://rorrns-ohrrn.ca/index.php?option=com_content&view=article&id=219%3Athe-role-of-immigrant-care-workers-in-an-aging-society-the-canadian-context-and-experience&catid=27%3Aother-reports&Itemid=46&lang=en.
19. Stall N, Cummings G, Sullivan T. Caring for Canada's seniors will take our entire health care workforce. [accessed 2014 January 22]. Available from: <http://healthydebate.ca/2013/09/topic/community-long-term-care/non-md-geriatrics>.
20. Mackenzie H, Rachlis M. The sustainability of medicare. Ottawa, Ont.: The Canadian Federation of Nurses Unions; 2010.
21. Canadian Institute for Health Information. Health care in Canada: a focus on seniors and aging, 2011. [Accessed 2014 January 22]. Available from: https://secure.cihi.ca/free_products/HCIC_2011_seniors_report_en.pdf.
22. Leal M. Internação de idosos representa um terço dos gastos do SUS. [accessed 2014 March 22]. Available from: <http://saudeweb.com.br/39580/internacao-de-idosos-representa-um-terco-dos-gastos-do-sus/>.
23. Densky A, Naylor C. Canada's health care system – reform delayed. *N Engl J Med* 2003;349(8):804–10.
24. Health Canada. Canada's Health Care System. 1999. Available from: http://publications.gc.ca/collections/Collection/H88-3-30-2001/pdfs/other/hcs_e.pdf.
25. Pain J, Travassos C, Almeida C, Bahia L, Macinko J. The Brazilian health system: history, advances, and challenges. *Lancet* 2011;377:1778–97.
26. Instituto de Estudos de Saude Suplementar. Envelhecimento Populacional e os Desafios para o Sistema de Saude Brasileiro. [accessed 2013 March 19]. Available from: www.iess.org.br/html/1apresentao.pdf.
27. Whittemore R, Knaf K. The integrative review: updated methodology. *J Adv Nurs* 2005;52(5):546–53.
28. Broome ME. Integrative literature reviews for the development of concepts. In: Rodgers BL, Knaf KA, editors. *Concept development in nursing*. 2nd ed. Philadelphia, PA: W.B.Saunders Co; 1993. pp. 231–50.
29. Ganong LH. Integrative reviews of nursing research. *Res Nurs Health* 1987;10(1):1–11.
30. Machado V, Leonidas C, Santos MA, Souza J. Psychiatric readmission: an integrative review of the literature. *Int Nurs Rev* 2012;59(4):447–57.
31. Given LM. *The sage encyclopedia of qualitative research methods: A-L*. Vol.2, MZ Index. 2008.
32. Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Med* 2009;6(7):e1000097.
33. Bezerra AF, Espirito Santo AC, Batista Filho M. [Conceptions and practices of community health agents caring for the elderly]. *Rev.Saude Publica* 2005;39(5):809–15.
34. Brasil.Ministerio da Saude. Guia Pratico do Agente Comunitario de Saude. 2009. [accessed 2014 March 22]. Available from: http://dab.saude.gov.br/portaldab/biblioteca.php?conteudo=publicacoes/guia_acs.
35. Coelho MAAA, Oliveira EN, Canuto OMC. Educacao Fisica na Estrategia Saude da Familia: Uma experiencia com pessoas na terceira idade. *SANARE.ANO V, V.1*. 2004;151–8.
36. Forbes D, Ward-Griffin C, Kloseck M, Mendelsohn M, St-Amant O, DeForge R, et al. “Her world gets smaller and smaller with nothing to look forward to”: dimensions of social inclusion and exclusion among rural dementia care networks. *Online Rural Nurs Health Care* 2011;11(2):27–42.
37. Garcia ESS, Saintrain MVL. Perfil epidemiologico de uma populacao idosa atendida pelo programa saude da familia. *Rev. enferm.UERJ, Rio de Janeiro* 2009 Jan/Mar;17(1):18–23.
38. Johnson CSJ, Myers AM, Scholey LM, Cyarto EV, Ecclestone NA. Outcome evaluation of the Canadian centre for activity and aging's home support exercise program for frail older adults. *J Aging Phys Act* 2003;11:408–24.
39. Johnson CS, Noel M. Level of empowerment and health knowledge of home support workers providing care for frail elderly. *Home Health Care Serv Q* 2007;26(3):61–80.
40. Loures LF, Silva MCS. A interface entre o trabalho do agente comunitário de saúde e do fisioterapeuta na atenção básica à saúde. *Ciência & Saúde Coletiva* 2010;15(4):2155–64.
41. Marodin G, Merotto J, Zanchet F, Boeno DC, Fernandes A, Cervi MC. Agentes Comunitarios de Saude, idosos e PET-SAÚDE: uso e cuidados com medicamentos. *Revista Contexto & Saude* 2011;11(20 Jan/Jun):635–42.
42. Ribeiro KSQS, Araujo Neto MJ, Arangio MG, Nascimento PBS, Martins TNT. A participacao de Agentes Comunitarios de Saude



- na Atuacao da Fisioterapia na Atencao Basica. *Revista APS*, v.10, n.2, jul./dez. 2007;156–68.
43. Tudor-Locke C, Myers AM, Shanthi Jacob C, Jones G, Lazowski D-A, Ecclestone NA. Development and formative evaluation of the centre for activity and ageing's Home Support Exercise Program for frail older adults. *J Aging Phys Act* 2000;8(1):59–75.
 44. Glenton C, Colvin C, Carlsen B, Swartz A, Lewin S, Noyes J, et al. Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health: qualitative evidence synthesis (Review). *Cochrane Library* 2013;(10):1–83.
 45. Lewin S, Munabi-Babigumira S, Glenton C, Daniels K, Bosch-Capblanch X, van Wyk BE, Odgaard-Jensen J, Johansen M, Aja GN, Zwarenstein M, Scheel IB. Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases. *Cochrane Database Syst Rev*. 2010 Mar 17;(3):CD004015, p. 1–173.
 46. Johnson C, Noyes J, Haines A, Thomas K, Stockport C, Ribas AN, et al. Learning from the Brazilian community health worker model in North Wales. *Global Health* 2013;9(25):2–5.
 47. National Center for Chronic Diseases Prevention and Health Promotion, Division for Heart Disease and Stroke Prevention. Addressing chronic diseases through community health workers: a policy and systems-level approach. A policy brief on community health workers. [accessed 2014 March 14]. Available from: www.cdc.gov/dhdsp/docs/chw_brief.pdf.
 48. Volkman K. Community health workers as patient navigators. [accessed 2014 March 21]. Available from: www.nwrpca.org/health-center-news/253-community-health-workers-as-patient-navigators.html.
 49. Jackson SF, Riley BL. Health promotion in Canada: 1986 to 2006. *Promot Educ* 2007;14:214–8.
 50. World Health Organization. The Ottawa Charter for Health Promotion. [accessed 2014 May 17]. Available from: www.who.int/healthpromotion/conferences/previous/ottawa/en/.
 51. Torres S, Spitzer DL, Labonte R, Amaratunga C, Andrew C. Innovative approaches to health promotion outreach and community development among immigrant and refugee populations. *J Ambul Care Manage* 2013;36(4):305–18.
 52. Alzheimer's Disease International. World Alzheimer Report 2013: Journey of caring- An analysis of long-term care for dementia. [accessed 2014 May]. Available from: <http://www.alz.co.uk/research/WorldAlzheimerReport2013.pdf>.
 53. LeDuc Media. World life expectancy: live longer live better. [accessed 2014 May]. Available from: www.worldlife-expectancy.com/cause-of-death/alzheimers-dementia/by-country/.
 54. Ontario Ministry of Training CaU. Personal Support Worker Program Standard. [accessed 2014 May]. Available from: www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/health/supwork.html.
 55. Pew Research Center. Attitudes about aging: a global perspective. [accessed 2014 May]. Available from: www.pewglobal.org/2014/01/30/chapter-1-global-public-opinion-on-aging/.
 56. Sinha SK. Living Longer, Living Well: Report submitted to the Minister of Health and Long-Term Care and the Minister Responsible for Seniors on Recommendations to Inform a Seniors Strategy for Ontario. 2012. [accessed 2014 January 22]. Available from: www.health.gov.on.ca/en/common/ministry/publications/reports/seniors_strategy/docs/seniors_strategy_report.pdf.
 57. Health BC government. Personal Assistance Guideline. [accessed 1997 May]. Available from: www.health.gov.bc.ca/assisted/pdf/guidelines.pdf.
 58. The Canadian Centre for Activity and Aging. Home Support Exercise Program. [accessed 2014 May]. Available from: www.ccaa-outreach.com/courses/show,4.htm.
 59. Conselho Federal de Fisioterapia e Terapia Ocupacional. *Novela*. [accessed 2014 May]. Available from: www.coffito.org.br/publicacoes/pub_view.asp?cod=2077&psecao=7.