Iziduh *et al.*
International Journal for Equity in Health (2025) 24:94
https://doi.org/10.1186/s12939-025-02466-7

International Journal for
Equity in Health

REVIEW **Open Access**

The design and implementation of culturally-safe dementia risk reduction strategies for immigrant women: a theoretical review

Sharon Iziduh[1], Bora Umutoni[1], Saleema Allana[2], Oluwakemi Amodu[3], Carmela Tartaglia[4] and Anna R. Gagliardi[1*]

Abstract

Background Raising awareness about dementia risk reduction is particularly important for ethno-culturally diverse or immigrant women, who have greater risk of dementia compared with men due to multiple interacting factors. We aimed to synthesize prior research on culturally-safe strategies to raise diverse women's awareness of dementia risk reduction.

Methods We conducted a theoretical review. We searched for studies published up to April 2023 included in a prior review and multiple databases. We screened studies and extracted data in triplicate, informed by existing and compiled theoretical frameworks (WIDER, RE-AIM, cultural safety approaches) and used summary statistics, tables and text to report study characteristics, and strategy design, cultural tailoring, implementation and impact.

Results We included 17 studies published from 2006 to 2021. Most were conducted in the United States (15, 88%), before-after cohorts (7, 41%), and included African, Caribbean or Latin Americans (82%). No studies focused solely on women (median women 72%, range 50% to 95%). All strategies consisted of in-person didactic lectures, supplemented with interactive discussion, role-playing, videos and/or reinforcing material. Strategies varied widely in terms of format, delivery, personnel, and length, frequency and duration. Details about tailoring for cultural safety were brief and varied across studies. Ten approaches were used to tailor strategies, most often, use of target participants' first language. Assessment of implementation was limited to reach and effectiveness, offering little insight on how to promote adoption, fidelity of implementation and longer-term maintenance of strategies. Strategies increased knowledge of dementia and decreased misconceptions, but did not prompt participants to seek dementia screening in the single study that assessed behaviour.

Conclusions While this review revealed a paucity of research, it offers insight on how to design culturally-safe dementia risk reduction strategies that may be suitable for ethno-culturally diverse or immigrant women. Healthcare professionals can use these findings to inform policy, clinical guidelines and public health programs. Future research is needed to establish the ideal number, length and duration of sessions, and confirm strategy effectiveness for diverse women.

Keywords Women, Dementia, Equity, Risk reduction, Strategies, Design, Cultural safety, Implementation, Review

*Correspondence:
Anna R. Gagliardi
anna.gagliardi@uhn.ca
Full list of author information is available at the end of the article

Background

Dementia is the second largest cause of disability for older persons and the seventh leading cause of death [1]. The World Health Organization estimates that dementia will affect 152 million people worldwide by 2050 [1]. Dementia refers to mild, moderate or severe cognitive impairment that affects memory, cognitive function, behaviour and ability to perform daily activities [1]. Dementia has profound health and socioeconomic consequences. People with dementia have complex psychological, social and biomedical needs, which largely fall on family caregivers, negatively impacting caregiver employment, health and well-being [2].

Dementia is not a normal part of ageing, therefore it is important to prevent or delay dementia by reducing modifiable risk factors such as physical inactivity, hypertension, obesity, diabetes, depression, and substance use, among others [review dementia strategies, 2].

There is a recognized need to raise awareness about dementia prevention among disadvantaged, hard-to-reach groups [3]. Immigrants commonly have high rates of the aforementioned dementia risk factors [4]. Also, many immigrants possess ethno-cultural misperceptions about the cause and prevention of dementia, which, in combination with perceived stigma, and mistrust of mainstream healthcare providers, prevents or delays help-seeking [5–7]. A systematic review and meta-synthesis of 18 studies published from 2000 to 2021 revealed that a lack of culturally-appropriate dementia services can impede access to dementia care among immigrants [8]. Research in Sweden [9], Australia, United States, United Kingdom and elsewhere reported additional challenges to dementia risk reduction or help-seeking among immigrants including language barriers, economic constraints and low acculturation to their new country [10–15].

Dementia disproportionately affects women. Nearly two-thirds of persons aged 65+with dementia are women, an escalating reality as older persons are increasingly women [16]. This is particularly true of ethno-culturally diverse women who may be immigrants, and have higher rates of dementia risk factors (e.g. obesity), and lower rates of behaviours that reduce risk (e.g. physical activity) compared with immigrant men and non-immigrants [17]. Research shows that determinants include gender roles and norms (sacrifice self-care for family obligations), culture (lack health knowledge) and socio-economic (low-paying/multiple jobs leave little time for self-care) factors plus avoidance of help-seeking due to poor healthcare experiences [17, 18].

Knowledge is needed of strategies that can promote awareness among diverse women of how to reduce dementia risk. Analysis of dementia strategies in 30 other countries found they did not address how to overcome gender, cultural or other socio-economic barriers to dementia awareness and help-seeking [19, 20]. A review by Sagbakken of 264 studies involving European immigrants published up to 2016 found that plain language educational materials, videos, ethnic-minority mass media (radio, television, newspapers) and community-based seminars raised immigrant awareness about dementia [21]. However, the Sagbakken review did not identify which strategies targeted ethno-culturally diverse or immigrant women, or strategy design and implementation to optimize use and impact. The overall aim of this study was to generate insight on culturally-safe strategies that can increase diverse women's dementia risk reduction knowledge and behaviour. The specific objective was to review published research and describe the design, cultural tailoring, implementation and impact of strategies used to promote dementia risk reduction to ethno-culturally diverse women.

Methods

Approach

We conducted a theoretical review to synthesize and analyze the available literature on strategies promoting dementia risk reduction among immigrant women [22]. This type of review can transform research into higher-level knowledge by mapping the findings to, or generating taxonomies or frameworks; is more exploratory than realist reviews, and more targeted than scoping reviews; thus, more suitable for describing the design and implementation of health promotion interventions [22]. Theoretical reviews are similar in steps and rigour to other types of syntheses but do not require critical appraisal of included studies [22]. We complied with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses [23]. To further enhance rigour, we engaged the interdisciplinary research team in conceptualization, study design, eligibility criteria, review and interpretation of data, and report preparation. The research team included five immigrant women advisors, a neurologist whose research addresses equity and women's health, three health services researchers with expertise in immigrant women's health; and six collaborators representing community agencies that offer health promotion to immigrant women, knowledge mobilizing organizations focused on brain health, and an academic-healthcare provider network focused on improving dementia care. We did not require research ethics board approval as data were publicly available and we did not register a protocol.

Eligibility

Additional File 1 provides detailed eligibility criteria. In brief, we included qualitative, quantitative or multiple-/

mixed-methods studies that developed or evaluated strategies to promote dementia risk reduction to immigrant (defined as those with naturalized, landed or permanent residency in a country to which they emigrated from their country of origin) or ethno-culturally diverse women (defined as the descendents of immigrants) in developed countries (to be similar to our Canadian setting). Participants included 50% + women (and reported disaggregated outcomes by sex/gender) aged 18 + of any ethno-cultural group without diagnosed dementia, family members, healthcare professionals or knowledge brokers (e.g. community health workers, pharmacists). We searched for studies published in 2000 or later to include research published after the Sagbakken review [21]. We did not include reviews, but screened the references of reviews on relevant topics and of eligible primary studies.

Searching and screening

We employed a two-pronged approach to identify eligible studies. We screened 246 references published up to and including 2016 synthesized in the Sagbakken review of strategies used to raise European immigrant's awareness about dementia for studies specific to women [21]. We also searched for eligible studies published in 2017 or later. Additional File 2 shows the strategy that we used to search MEDLINE, EMBASE, CINAHL, Social Work Abstracts, PsychINFO, Cochrane Library, Joanna Briggs Database, CAB Abstracts and AMED in April 2023. The search strategy was an expanded version of that used by Sagbakken [21]. Key search terms reflected the concepts of dementia (dementia or Alzheimer's disease), the informational intervention (e.g. health education, health promotion, patient education), and immigrants or ethno-culturally diverse people (e.g. emigrants and immigrants, ethnicity, racial groups). We did not search grey literature due to considerable limitations noted by others: few repositories, no standardized methods for searching, resource intensive, low yield and potential high risk of bias in grey literature items [24, 25]. We complied with the Peer Review of Electronic Search Strategy reporting guidelines, which involves consulting a medical librarian for guidance on translation of the research question into Medical Subjects Headings or keywords using Boolean and proximity operators [26]. With training and guidance from ARG (woman, PhD-trained health services researcher), BU (woman, Master level graduate student) and SI (woman, PhD level research associate) screened all titles in duplicate. BU and SI consulted ARG to discuss and resolve discrepancies or uncertainties. They conducted full-text screening concurrent with data extraction. Although the search strategy specifically included search terms for immigrants and ethno-culturally diverse persons, by screening titles and abstracts, and then full-text of potentially-eligible article, we ensured that the participants of included studies were either immigrants or ethno-culturally diverse people, of whom at least 50% were women.

Data extraction and analysis

To pilot test the data extraction process, BU, SI and ARG independently extracted data from the same three studies, and compared and discussed discrepancies to achieve common agreement on how to extract data. Thereafter, BU and SI extracted data in duplicate, and discussed discrepancies or uncertainties with ARG. We extracted data on study characteristics (author, country, year published, objective, research design, participant characteristics). We used the Workgroup for Intervention Development and Evaluation Research criteria to describe strategy design: personnel, content, format, delivery and timing (i.e. length, frequency, duration) [27]. To describe how studies assessed strategy implementation, we used RE-AIM, a widely-used framework that assesses: reach (participants), efficacy (impact), adoption (uptake), implementation (fidelity of strategy) and maintenance (long-term use) [28]. To assess the cultural safety of strategies, in the absence of an existing standardized model or framework, we compiled aspects of cultural safety from prior research involving immigrant women, and looked for these and any other unique forms of cultural tailoring in included studies: language of choice, offered by community agencies and/or lay health workers, acknowledgment or employing ethno-cultural linguistic expressions and behavioural norms, offered solutions to socio-cultural barriers of desired behaviour, established trust, explored underlying beliefs, asked about concerns, employed empathic communication, avoided blame, provided supplementary or reinforcing information, avoided details about intimate body parts, involved women only (if in person), included group activities for social interaction, and included interactivity via discussion and question-asking [29–34]. We chose the term cultural safety, defined as "effective care of a person from another culture as determined by that person, where culture includes but is not limited to: age or generation, gender, sexual orientation, occupation, socioeconomic status, ethnic origin, migrant experience, religious/spiritual beliefs or disability," because it is a broader conceptualization compared with other terminology such as cultural sensitivity, appropriateness or competence, assumes the perspective of people facing healthcare disparities and power differentials, and prompts healthcare organizations and authorities to be held accountable for providing culturally-safe care as defined by those disadvantated groups [30]. Strategy impact included but was not limited to dementia risk reduction awareness, knowledge, attitudes or behaviour. We used summary statistics, tables and text to report the characteristics of included studies, and strategy design, cultural tailoring, implementation and impact. We could not pool data on strategy impact due to variations in study design, measures of impact and measurement techniques.

Results

Search results

Figure 1 shows the PRISMA diagram. We identified a total of 484 titles: 264 from the Sagbakken review [21], 208 from database searching and 12 from screening of references of eligible articles. After removing duplicates, 472 titles remained. Screening of titles eliminated 431 items that did not meet eligibility criteria, and based on PRISMA and PRESS reporting guidelines, reasons for exclusion are required only at the full-text screening phase [23, 26]. Of the remaining 41 full-text items, we eliminated 24 items for the following reasons: did not develop or evaluate strategies that promote dementia risk reduction to immigrant women ($n = 18$), study participants had a diagnosis of dementia ($n = 5$) and did not include 50% + diverse women ($n = 1$). Ultimately, we included 17 studies in the review [35–51]. Additional File 3 provides detailed data extracted from included articles [35–51].

Study characteristics

Table 1 summarizes study characteristics. Studies were published from 2006 to 2021. The majority of studies were based in the United States (15, 88.2%) with one (5.9%) in each of Norway and the United Kingdom. Regarding research design, most studies were before-after cohort (7, 41.2%) studies, while 5 (29.4%) were prospective cohort studies. Five studies did not implement an intervention, but collected qualitative or quantitative data by questionnaire (4, 23.5%), or focus groups and interviews (1, 5.9%) to assess dementia beliefs, knowledge and/or willingness for preventive behaviours. All 12 (70.6%) studies that implemented an intervention assessed satisfaction with content and format, or impact of the intervention on dementia beliefs, knowledge and/or help seeking. No study included women only; other studies included various proportions of women (median 72%, range 50% to 95%) but did not report sub-analyses by sex/gender. All studies involved ethno-culturally diverse persons: 8 (47.0%) Latin American, 6 (35.3%) African or Caribbean American, 5 (29.4%) East Asian and 2 (11.8%) South Asian.

Strategy design

Table 2 summarizes the design of strategies to raise awareness about dementia risk reduction assessed in 12 (70.6%) studies based on the WIDER framework [27]. Content included information about dementia warning signs, prevention, diagnosis, types, stages, symptoms, management, myths and guidance for family of persons with dementia. Personnel included researchers, clinicians (e.g. nurse, psychiatrist) and trained lay leaders (e.g. representatives of the community, church leaders). With respect to format and delivery, all studies involved in-person group sessions of didactic lectures, with some also involving interactive discussion, role-playing and videos. Sessions ranged from 25 min to 4 h offered a single time or on multiple occasions over 3 weeks to 16 months.

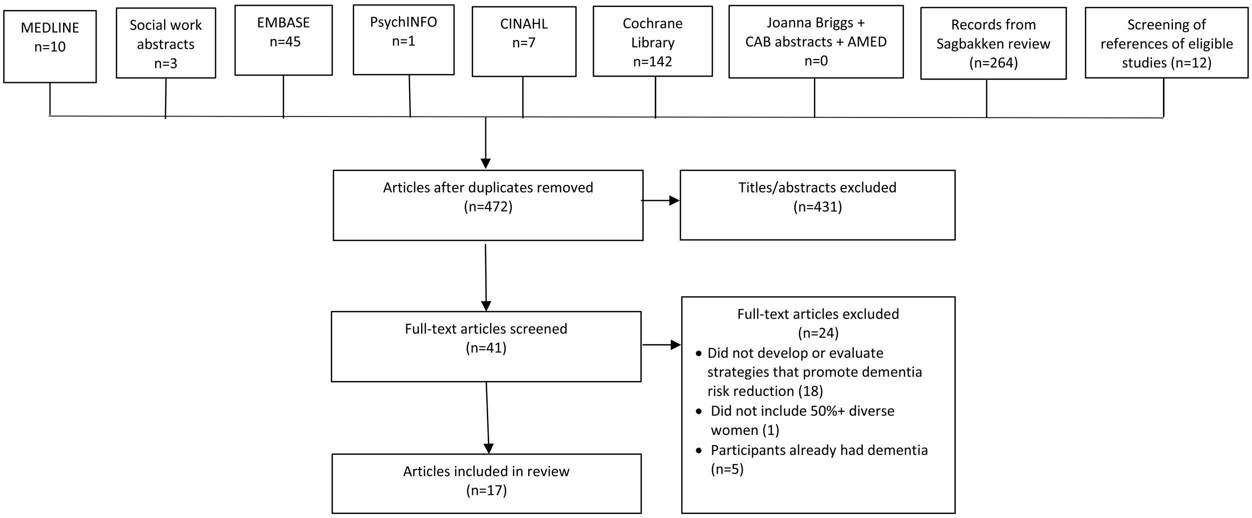

Fig. 1 PRISMA diagram. Flow chart depicting search results, screening process and ultimate number of articles included in the review

Table 1 Summary of study characteristics

Study [ref]	Date	Country	Research design	Strategy	Women only (% women)	Ethno-cultural group	Aim
Daccarett [35]	2021	United States	Before-after cohort (survey)	In-person group meeting	No (68)	Caribbean American	Assess impact on dementia knowledge and request for screening referral
Epps [36]	2021	United States	Before-after cohort (focus group)	In-person group meeting	No (82)	African American	Assess impact on feelings and attitudes about dementia
Epps [37]	2020	United States	Prospective cohort (survey)	In-person group meeting	No (75)	African American	Assess satisfaction with dementia education content and format
Wiese [38]	2020	United States	Prospective cohort (survey)	--	No (68)	White, African American and East Asian	Assess knowledge about dementia among rural communities
Perales [39]	2020	United States	Before-after cohort (survey)	In-person group meeting	No (79)	Latin American	Assess impact on dementia knowledge
Lincoln [40]	2019	United States	Randomized trial (before-after survey)	1/ in-person meeting + print materials 2/ culturally-tailored expanded meeting + print materials + text messages 3/ same as 2/ + culturally-tailored texts	No (73)	African American	Assess impact on dementia knowledge
Askari [41]	2018	United States	Before-after cohort (survey)	In-person group meeting	No (95)	Latin American	Assess impact on dementia knowledge and perceived importance of education
Woo [42]	2017	United States	Prospective cohort (YouTube analytics)	In-person meetings (group, on-on-one)	No (65)	East Asian	Assess satisfaction with dementia education content and format
Seifan [43]	2017	United States	Prospective cohort (survey)	--	No (72)	African American, Latin American and White	Assess willingness for dementia prevention behaviors
Grigsby [44]	2017	United States	Before-after cohort (survey, focus group)	In-person group meeting	No (83)	Latin American	Assess impact on dementia beliefs and knowledge
Zheng [45]	2017	United States	Prospective cohort (YouTube analytics)	In-person group meeting	No (50)	East Asian	Assess satisfaction with dementia education content and format
Zheng [46]	2016	United States	Prospective cohort (survey)	In-person group meeting	No (63)	East Asian	Assess impact on dementia attitudes and perceived stigma
Naess [47]	2015	Norway	Prospective cohort (field observation, focus group, interviews)	--	No (50)	South Asian	Access beliefs about dementia
Diamond [48]	2014	United States	Prospective cohort (survey)	In-person group meeting	No (72)	East Asian	Assess impact on dementia knowledge
Lee [49]	2010	United States	Prospective cohort (survey)	--	No (50)	East Asian	Assess dementia beliefs and knowledge
Purandare [50]	2007	United Kingdom	Prospective cohort (survey)	--	No (63)	South Asian and White	Assess dementia knowledge
Valle [51]	2006	United States	Prospective cohort (survey)	In-person group meeting	No (77)	Latin American	Assess impact on dementia knowledge

Table 2 Design of strategies to raise awareness about dementia risk reduction

Study	Target group	Intervention characteristics by WIDER framework [27]				
		Personnel	**Content**	**Format**	**Delivery**	**Timing**
Daccarett [35]	Caribbean American (United States)	Lead pastor and volunteers	Information about normal aging versus dementia, the four most common types of dementia, and modifiable risk factors, strategies to control hypertension and diabetes, common Haitian nutrition practices, benefits of early detection and diagnosis of dementia, and distinguishing between routine screening and assessment/diagnosis	Lecture Discussion	In-person group meeting	2-h weekly meetings for 6 weeks
Epps [36]	African American (United States)	Community church staff	Basic and warning signs of dementia, dementia-friendly communication and re-engaging dementia families	Lecture Role-play	In-person group meeting	Single session of 4 h
Epps [37]	African American (United States)	A public health nurse, professionals from local nonprofit agencies and church leaders	Information to promote understanding of dementia in the African-American community	Lecture Discussion	In-person group meeting	9 meetings over 16 months
Perales [39]	Latin American seniors (United States)	Latin presenters trained in cultural proficiency	Evidence based information about meaning of Alzheimer's disease, diagnosis, treatment, brain health and resources	Lecture	In-person group meeting	Single 45-min meeting
Lincoln [40]	African American (United States)	Researchers, talk show host, and two guests	Information about Alzheimer's disease, basic brain health, risk factors, prevention strategies, signs and symptoms	Lecture	In-person group meeting	2 1-h meetings
Askari [41]	Latin American (United States)	Promotoras from community agency	Dementia information from a culturally tailored training manual, "Dementia in the Latino Community," with information dementia types, symptoms, risk factors and prevention	Lecture Discussion Video	In-person group meeting	6 2-h meetings over 6 months; 10-min video

Table 2 (continued)

Study	Target group	Intervention characteristics by WIDER framework [27]				
		Personnel	**Content**	**Format**	**Delivery**	**Timing**
Woo [42]	East Asian (United States)	Psychiatrist fluent in Cantonese, a Nobel Laureate with dementia	General dementia knowledge, including symptoms, staging, risk factors, etiology, and different types of dementia like Alzheimer's disease, and dementia diagnosis and prevention, elements of the mental status examination, potential medical illnesses related to dementia, and the importance of healthy lifestyles	1/ Lecture + Discussion 2/ Audio-recording 3/ Video	1/ In-person meeting 2/ Radio broadcast 3/ YouTube and television	1/ Single 1-h lecture and 30-min discussion 2/ Single 1-h radio broadcast 3/ 2 YouTube and 2 television episodes of 30 min each
Grigsby [44]	Latin American (United States)	Researchers, dementia experts, script-writers	Information about dementia symptoms and the impact on the family	Audio-visual novela (photos, text, audio and music)	In-person group meeting	Single 90-min meeting
Zheng [45]	East Asian (United States)	Board-certified psychiatrist	Information on dementia symptoms, staging, risk factors, etiology, different types, diagnosis and prevention, insights into various mental examinations, potential medical problems leading to dementia, and the importance of adopting healthy lifestyles	Lecture Videos	In person group meeting	Single 25-min meeting, 2 25-min videos
Zheng [46]	East Asian (United States)	Not reported	Challenges faced by a family with a loved one suffering from dementia	Lecture Video	In-person group meeting	Single meeting, 7-min video
Diamond [48]	East Asian (United States)	Not reported	Information about aging, dementia symptoms, cause, treatment, and prognosis	Lecture	In-person group meeting	Not reported
Valle [51]	Latin American (United States)	Researchers	Information to dispel common myths and provide accurate information about Alzheimer's disease	Lecture Discussion	In-person group meeting	2 sessions of 45 to 60 min, 3 weeks apart

Cultural tailoring

Table 3 summarizes how studies addressed cultural safety. Of the 5 (29.4%) studies that explored dementia beliefs or knowledge, 3 addressed cultural safety by recruiting participants in local, familiar community organizations such as places of worship; using participants' first language or translating instruments to their first language, employing plain language or terms familiar to participants, and providing a small gift to participants in accordance with cultural norms. In studies that evaluated strategies to promote awareness of dementia risk reduction (12, 70.6%), 10 approaches were used to tailor the strategy for cultural safety, although details were generally brief. The most frequently used approaches were use of first language (9, 75.0%), and use of plain language or culturally-familiar terms (5, 41.7%). Other cultural tailoring approaches used in more than one study included held in local, familiar community organizations, presenters of same ethno-cultural group and interactivity used to engage participants.

Implementation

Table 4 summarizes how 12 (70.6%) studies evaluated the implementation of strategies to raise awareness about dementia risk reduction based on the RE-AIM framework [28, 29]. All 12 studies assessed strategy reach by reporting the number, proportion or characteristics of participants. All 12 studies assessed strategy effectiveness by evaluating the impact on participant knowledge of dementia (7, 58.3%), satisfaction with strategy design (4, 33.3%), beliefs about dementia (3, 25.0%) and screening behaviour (1, 8.3%). No studies assessed other implementation domains (adoption, implementation, maintenance).

With respect to actual impact, of the 7 studies that assessed knowledge, 1 study identified topics that scored lower, representing knowledge gaps: association with aging, treatment options, inability to perform familiar tasks, inability to recognize people/places and life expectancy [48]. The remaining 6 studies showed that knowledge increased after exposure to the educational strategy [35, 39–41, 44, 51]. Among 4 studies that assessed satisfaction with strategy design, participants appreciated the importance of learning about dementia [41], and preferred in-person learning over other formats (e.g. YouTube videos, radio or television broadcast) [37, 42, 45], particularly women and older persons [45]. Among 3 studies that assessed beliefs, all strategies reduced stigma and dispelled concerns about quality of life [36, 44, 46]. The single study that assessed behaviour reported that only 6 of 50 participants sought referral to a memory clinic for evaluation after exposure to the educational strategy [35].

Discussion

This theoretical review identified few studies, the majority of studies involved Caribbean, African or Latin Americans who may not have been immigrants; and no studies focused only on women or reported sub-analyses of results by sex/gender. While all strategies included in-person didactic lectures, they varied widely in terms of supplemental components (e.g. interactive discussion, role-playing, videos) and other design features (format, delivery, personnel, length, frequency and duration). Details about tailoring for cultural safety were brief and varied across studies. While 10 approaches to tailor strategies emerged, most often this was restricted to use of target participants' first language. Other approaches included consultation with or involvement of representatives from the same community as target participants, or community-based strategy delivery. Regarding implementation, studies assessed reach and effectiveness, offering little insight on how to promote adoption, fidelity of implementation and longer-term maintenance of strategies. Although evidence was sparse, the strategies evaluated by included studies decreased dementia misconceptions and increased dementia knowledge, signaling the potential value of culturally safe strategies to raise awareness about dementia risk reduction for ethno-culturally diverse women.

The bulk of research on dementia risk reduction has focused on identifying risk factors for dementia. For example, meta-analyses by the *Lancet* Commission identified 12 risk factors: less education, hypertension, hearing impairment, smoking, excessive alcohol consumption, obesity, depression, physical inactivity, diabetes, low social contact, traumatic brain injury and air pollution [52]. The same report noted that many risk factors cluster around inequalities, particularly in Black, Asian, and minority ethnic groups and the importance of addressing these inequalities, but did not offer evidence-based guidance on how to do so [52]. Trials have focused on multi-domain interventions to modify vascular and lifestyle risk factors. For example, the FINGER trial found that diet, exercise, cognitive training, vascular risk monitoring resulted in improved or maintained cognitive function among the test group compared with controls but did not report sub-analyses by gender or ethno-cultural group, and did not assess how to widely scale up this intervention [53]. This work led to World-Wide FINGERS, a global network for dementia prevention trials, which aims to culturally-adapt FINGER-like interventions, but this appears to be based on the conduct of trials in 40 different countries, some of which focus on the elderly and some on rural communities, but none focus on ethno-culturally diverse women [54]. A 2022 review by Huggins et al. included 25 studies published from 2015

Table 3 Tailoring of strategies for cultural safety

Study	Cultural Safety	
	Tailoring reported by authors	**Tailoring category**
Daccarett [35]	Informed consent and education sessions were delivered in Creole	Used first language
Epps [36]	Workshops were hosted by African American churches with varying Christian denominations	Held in local, familiar community organization
Epps [37]	Meetings were held in African American churches	Held in local, familiar community organization
Wiese [38]	Not reported	NO INTERVENTION Not reported
Perales [39]	– External Latino community liaisons were consulted to gather insights on preferences and barriers within the community – Lecture was delivered in English and Spanish – Lecture took place in a local community organization specialized in assisting the Latino community – Content was adapted to accommodate cultural nuances and preferences, including incorporating interactive activities, videos on Alzheimer's symptoms, assessment, and brain health promotion – Colloquial language and pictorial slides were utilized to cater to diverse literacy levels – Resources related to brain health, treatment, and caregiving services were included in the intervention to address community-specific needs and facilitate access to relevant support services – Presenters belonged to a Latino health research institution with a history of community engagement and partnership-building	– Community members engaged in developing program – Used first language – Used plain/familiar language – Used visual aids – Included social interaction – Held in local, familiar community organization – Presenters of same ethno-cultural background – Presenters known to participants – Provided information about support services to overcome community-specific barriers
Lincoln [40]	Incorporated culturally tailored text messages designed specifically for African Americans, with African colloquialisms, idioms, tenses, style, language, and content	Used plain/familiar language
Askari [41]	– Training manual and materials for promotoras were translated into Spanish – Training was provided primarily in Spanish, with intermittent direction and guidance from the two English-speakers on the training team – Translators were available during the trainings – Community based organizations familiar to the participants conducted the training and translated the training manual to Spanish	– Used first language (in training and manual) – Translators were present – Held in local, familiar community organization – Presenters of same ethno-cultural background
Woo [42]	– Interventions were conducted Cantonese – Lay health workers and community representatives were part of the leadership group – Interventions explored underlying beliefs by incorporating personal stories, engaging discussions, and sharing experiences related to dementia – Seminars and radio shows included interaction for discussion and question-asking	– Used first language – Used plain/familiar language – Presenters of same ethno-cultural background – Included social interaction
Seifan [43]	Not reported	NO INTERVENTION Not reported
Grigsby [44]	– Novela and focus groups were conducted in English and Spanish – Designed at a 3rd-grade reading level – Question and answer section at 8th-grade reading level	– Used first language – Used plain/familiar language – Included social interaction
Zheng [45]	Education delivered in Cantonese	Used first language
Zheng [46]	The seminar and short film were delivered in Cantonese	Used first language
Naess [47]	– Researchers engaged with mosques and immigrant organizations frequented by Norwegian-Pakistanis to ensure diverse perspectives were captured – Interviews were conducted in Norwegian	NO INTERVENTION – Held in local, familiar community organization – Used first language
Diamond [48]	Seminars were conducted in Cantonese	Used first language
Lee [49]	Instruments were translated into Korean, with cultural appropriateness confirmed through focus groups with bilingual social workers and Korean Americans	NO INTERVENTION – Community members engaged in developing instruments – Used first language
Purandare [50]	The questionnaires was available in English, Gujurati, or Urdu	NO INTERVENTION Used first language

Table 3 (continued)

Study	Cultural Safety	
	Tailoring reported by authors	**Tailoring category**
Valle [51]	– Fotonovelas produced specifically in Spanish for use with low- and moderate-literate adults – Participants received a small handcrafted gift, a popular item among older Latinos, as compensation for their attendance at the session, which reflects an understanding of cultural norms and practices	– Used first language – Used plain/familiar language – Provided a small gift

Table 4 Evaluation of strategy implementation

Study	Implementation by RE-AIM Framework [28, 29]				
	Reach	**Effectiveness**	**Adoption**	**Implementation**	**Maintenance**
	Number or diversity of participants	**Impact on participant knowledge, views, behaviour or health outcomes**	**Extent that providers or agencies adopt and integrate the dementia intervention into practice**	**Consistency of program delivery as intended by the researchers**	**Sustainability of the intervention and its effects over time**
Daccarett [35]	✓	knowledge, screening	–	–	–
Epps [36]	✓	beliefs	–	–	–
Epps [37]	✓	satisfaction	–	–	–
Perales [39]	✓	knowledge	–	–	–
Lincoln [40]	✓	knowledge	–	–	–
Askari [41]	✓	knowledge. satisfaction	–	–	–
Woo [42]	✓	satisfaction	–	–	–
Grigsby [44]	✓	beliefs, knowledge	–	–	–
Zheng [45]	✓	satisfaction	–	–	–
Zheng [46]	✓	beliefs	–	–	–
Diamond [48]	✓	beliefs, knowledge	–	–	–
Valle [51]	✓	beliefs, knowledge	–	–	–
TOTAL	12	–	0	0	0

to 2020 that evaluated educational interventions to promote dementia knowledge among racial/ethnic minority groups [55]. Similar to our review, most studies in the Huggins review were conducted in the United States and included ethno-cultural groups common in the United States whose immigrant status was unclear [55]. In contrast to our research, the Huggins review included studies published from 2015 to 2022 (five-year time span compared with our review of studies published from 2006 to 2021) did not identify if any studies focused solely on women or report the proportion of women; nor did it analyze the findings using theoretical frameworks to generate insight on how to improve future interventions and research. Content analysis of 18 clinical guidelines for primary care practitioners on dementia risk reduction found that guidelines varied in advice offered, advice was brief, and focused on identifying patients with risk factors and asking them to discuss dementia risk reduction [56]. However, no guidelines acknowledged populations at higher risk or offered strategies to tailor counseling or other interventions for those groups aimed at raising awareness about dementia risk reduction, nor did the authors identify this as a limitation [56]. This study is unique because it identified, described and assessed the implementation and impact of culturally tailored strategies to raise awareness about dementia risk reduction specifically among high-risk diverse women by employing three theoretical frameworks, and searching for and including studies published over a greater time span compared with prior research..

The findings raise several implications for policy, practice and research. With respect to policy, healthcare systems and professional societies could bring attention to the need for dementia risk reduction strategies targeting at-risk groups such as ethno-culturally diverse women by acknowledging such inequities in policies that inform public health programs and in clinical practice guidelines that assist generalist and specialist clinicians to provide person-centred, culturally-safe prevention counseling. Given prior research showing that national policies and guidelines did not acknowledge or suggest actions for targeting diverse persons at higher risk of dementia [19, 20, 56], such high-level incentives are needed.

Regarding practice, this research provides some insight on how to design dementia risk reduction to target high-risk groups such as ethno-culturally diverse women. The strategies employed in included studies appeared to be effective because they increased dementia knowledge, and reduced misconceptions and stigma associated with dementia. Design elements common to strategies that could be emulated in future programs included format and cultural tailoring. All interventions were based on in-person meetings involving didactic lecture, and some also included interactive discussion, videos and take-home or follow-up material. Furthermore, in studies that compared different delivery options, participants preferred in-person delivery over YouTube videos or cultural media broadcasts (television, radio). Cultural tailoring included use of the participants' first language, consultation with or involvement of representatives from the same community as target participants, and holding in-person sessions in community organizations familiar to the participants. Prior research on health promotion for immigrant women in non-dementia contexts confirms the importance of these approaches for achieving cultural safety [29–34]. While only one study assessed dementia risk reduction behaviour, and found that in-person dementia risk reduction education did not prompt participants to seek dementia screening [35], other research offers some insight on how to design strategies that lead to behaviour change such as help-seeking or adopting healthy lifestyles. For example, a review of 50 qualitative studies published since 1995 yielded insight on the perspectives of 4500 + non-expert dementia-free members of the general public on strategies needed to reduce dementia risk [57]. Overall, the review found that education is key, but content, format and delivery need to be tailored based on co-design with representatives of target communities; and complementary interventions to support self-regulation mechanisms and social processes may increase education effectiveness [57].

This study offers insight on issues that warrant future research. Despite the disproportionate prevalence and risk of dementia among ethno-culturally diverse women, the paucity of research identified in this review shows that science has not progressed beyond Sagbakken's review published in 2017 [21]. While it appears that in-person education was preferred by participants and effective at improving dementia knowledge, other aspects of strategy design remain unclear. Future, more robust trials are needed to assess the ideal number, length and duration of sessions to optimize participation and impact. The need for multiple or multi-faceted interventions remains a debate in the implementation science literature [58]. Furthermore, such trials should target women only or report sub-analyses by gender and ethno-cultural group. Only once sufficient evidence is generated to identify the ideal strategy design can other aspects of implementation such as adoption, fidelity and maintenance be addressed. Research on these issues is advocated in the recent World Health Organization guideline on dementia risk reduction, which recommends: "Investigate the effect of genetic risk, sex, and ethnic differences in modifying the response to preventive interventions" [59].

This study featured several strengths. We employed rigorous review methods and complied with review reporting criteria [22, 23]. By employing a theoretical review approach [22], we extracted and mapped data to existing and compiled theoretical frameworks [27–34], which assisted in organizing, interpreting and reporting the findings. An interdisciplinary research team that included ethno-culturally diverse women guided all aspects of the study. Some limitations must be mentioned. As with any review, the search strategy may not have identified all relevant literature, our eligibility criteria may have eliminated potentially relevant studies, and inclusion of only English-language studies may have further limited the number of included studies. As noted earlier, the paucity of research on this topic, and variability in study designs and measures, offers little evidence to inform the future design and implementation of strategies to promote awareness of dementia risk reduction despite searching for all research published before April 2023. In particular, the findings may not be relevant to women, immigrants, or ethno-culturally diverse communities other than African, Caribbean or Latin Americans, or in countries other than the United States. However, reviews are important starting points in any research trajectory, and the identification of knowledge gaps offers explicit insight on topics that warrant ongoing research.

Conclusions

While no studies focused solely on women, this review of 17 studies published from 2006 to 2021 offered insight on how to design culturally safe dementia risk reduction strategies that may be suitable for ethno-culturally diverse or immigrant women who are at high risk of dementia due to multiple sex, gender and socio-economic factors. With respect to design, strategies should include in-person meetings involving didactic lecture, and interactive discussion, videos, and take-home or follow-up material to reinforce learning. Use of the participants' first language, consultation with or involvement of representatives from the same community as target participants, and holding in-person sessions in community organizations familiar to the participants can tailor strategies for cultural safety. Strategies designed in this way may improve dementia knowledge and reduce dementia-related misconceptions and stigma. This study is unique to prior research that largely focused on identifying risk factors for dementia. Health care professionals can use these findings to inform policy, clinical guidelines and public health programs. Future research is needed to establish the ideal number of number, length and duration of sessions, and confirm strategy effectiveness for diverse women.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12939-025-02466-7.

Additional file 1. Eligibility criteria. Table listing inclusion and exclusion criteria.

Additional file 2. Search strategy 26mar2024. Table showing the Medical Subject Headings and keywords used in the search.

Additional file 3. Data extracted from included studies. Table showing study characteristics, objective, research design and results extracted from each included study.

Acknowledgements

The authors thank members of the Dementia Study Women Advisory Group (AM, DS, KP, MN and PK) and our collaborating organizations for their input and feedback: Calgary Immigrant Women's Association, Windsor Women Working with Immigrant Women, Alzheimer Society of Ontario, brainXchange, Toronto Dementia Research Alliance and Pacific Immigrant Resources Society.

Authors' contribution

ARG conceived the study, acquired funding, and supervised and independently reviewed all aspects of the work including planning, data collection and analysis, and manuscript preparation. SI and BU assisted in collecting and analyzing data, and in drafting the manuscript. SA, OA and CT assisted in conceiving the study, planning data collection and analysis, interpreting results and drafting the manuscript. All authors read and approved the final manuscript.

Funding

This study is funded by the Canadian Institutes of Health Research, which took no part in study conceptualization, design, data collection and analysis, or decision to publish or preparation of the manuscript.

Data availability

All data generated or analysed during this study are included in this published article and its supplementary information files.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

[1]Toronto General Hospital Research Institute, University Health Network, Toronto, Canada. [2]Arthur Labatt Family School of Nursing, University of Western Ontario, London, Canada. [3]Faculty of Nursing, University of Alberta, Edmonton, Canada. [4]Toronto Western Hospital, University Health Network, Toronto, Canada.

Received: 15 April 2024 Accepted: 30 March 2025

References

1. World Health Organization. The epidemiology and impact of dementia: current state and future trends. Geneva: World Health Organization; 2015. http://www.who.int/mental_health/neurology/dementia/dementia_thematicbrief_epidemiology.pdf. Accessed 17 Mar 2024.
2. Public Health Agency of Canada. A dementia strategy for Canada. 2020 Annual Report. Ottawa: Public Health Agency of Canada; 2020. https://www.canada.ca/en/public-health/services/publications/diseases-conditions/dementia-strategy.html. Accessed 17 Mar 2024.
3. Bethell J, Pringle D, Chambers LW, Cohen C, Commisso E, Cowan K, et al. Patient and public involvement in identifying dementia research priorities. J Am Geriatr Soc. 2018;66:1608–12.
4. Mahmood B, Bhatti JA, Leon A, Gotay C. Leisure time physical activity levels in immigrants by ethnicity and time since immigration to Canada: findings from the 2011–2012 Canadian Community Health Survey. J Immigrant Minority Health. 2019;21:801–10.
5. Koehn S, McCleary L, Garcia L, Spence M, Jarrvis P, Drummond N. Understanding Chinese-Canadian pathways to a diagnosis of dementia through a critical-constructionist lens. J Aging Studies. 2012;26:44–54.
6. Kenning C, Daker-White G, Blakemore A, Panagioti M, Waheed W. Barriers and facilitators in accessing dementia care by ethnic minority groups: A meta-synthesis of qualitative studies. BMC Psychiatry. 2017;17:316.
7. Vickrey BG, Strickland TL, Fitten LJ, Rodriguez Adams G, Ortiz F, Hays RD. Ethnic variations in dementia caregiving experiences: Insights from focus groups. J Human Behav Soc Enviro. 2007;15:233–49.
8. Chejor P, Laging B, Whitehead L, Porock D. Experiences of older immigrants living with dementia and their carers: a systematic review and meta-synthesis. BMJ Open. 2022;12:e059783.
9. Sagbakken M, Spilker RS, Nielsen TR. Dementia and immigrant groups: a qualitative study of challenges related to identifying, assessing, and diagnosing dementia. BMC Health Serv Res. 2018;18:910.
10. Mukadam N, Cooper C, Livingston G. A systematic review of ethnicity and pathways to care in dementia. Geriatric Psych. 2011;26:12–20.
11. Daker-White G, Beattie AM, Gilliard J, Means R. Minority ethnic groups in dementia care: a review of service needs, service provision and models of good practice. Aging Ment Health. 2002;6:101–8.
12. Blakemore A, Kenning C, Mirza N, Daker-White G, Panagioti M, Waheed W. Dementia in UK South Asians: a scoping review of the literature. BMJ Open. 2018;8:e020290.
13. van Wezel N, Francke AL, KayanAcun E, Devillé WL, van Grondelle NJ, Blom MM. Explanatory models and openness about dementia in migrant communities: a qualitative study among female family carers. Dementia (London). 2018;17:840–57.
14. Kovaleva M, Jones A, Maxwell CA. Immigrants and dementia: Literature update. Geriatric Nurs. 2021;42:1218–21.
15. Hamrah MS, Bartlett L, Jang S, Roccati E, Vickers JC. Modifiable risk factors for dementia among migrants, refugees and asylum seekers in Australia: a systematic review. J Immigr Minor Health. 2023;25:692–711.
16. Bott NT, Sheckter CC, Milstein AS. Dementia care, women's health, and gender equity. JAMA Neurol. 2017;74:757–8.
17. Pan-Canadian Public Health Network. Pan-Canadian Health Inequalities Data Tool, 2017 Edition. A joint initiative of the Public Health Agency of Canada, the Pan-Canadian Public Health Network, Statistics Canada and the Canadian Institute of Health Information. https://health-infobase.canada.ca/health-inequalities/data-tool/index. Accessed 17 Mar 2024.
18. Gagliardi AR, Kim C, Jameel B. Physician behaviours that optimize patient-centred care: Focus groups with migrant women. Health Expect. 2020;23:1280–8.
19. Chow S, Chow R, Wan A, et al. National dementia strategies: what should Canada learn? Can Geriatr J. 2018;21:173–209.
20. Edick C, Holland N, Ashbourne J, Elliott J, Stolee P. A review of Canadian and international dementia strategies. Healthc Manage Forum. 2017;30:32–9.

21. Sagbakken M, Kumar B (editors). Report No. 2. Dementia, ethnic minorities and migrants. A review of the literature. Oslo, Norway: Norwegian Centre for Migration and Minority Health; 2017. https://www.fhi.no/globalassets/dokumenterfiler/rapporter/2017/sagbakken-kumar-dementia-ethnic-minorities-and-migrants-nakmi-rapport-2-2017.pdf. Accessed 17 Mar 2024.
22. Paré G, Trudel MC, Jaana M, Kitsiou S. Synthesizing information systems knowledge: a typology of literature reviews. Information Manage. 2015;52:183–99.
23. Moher D, Liberati A, Tetzlaff J, Altman DG, PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. PLoS Med. 2009;6:e1000097.
24. Adams J, Hillier-Brown FC, Moore HJ, Lake AA, Araujo-Soares V, White M, et al. Searching and synthesising "grey literature" and "grey information" in public health: critical reflections on three case studies. Syst Rev. 2016;5:164.
25. Benzies KM, Premji S, Hayden KA, Serrett K. State-of-the-evidence reviews: advantages and challenges of including grey literature. Worldviews Evid Based Nurs. 2006;3:55–61.
26. McGowan J, Sampson M, Salzwedel DM, Cogo E, Foerster V, Lefebvre C. PRESS Peer Review of Electronic Search Strategies: 2015 Guideline Statement. J Clin Epidemiol. 2016;75:40–6.
27. Albrecht L, Archibald M, Arseneau D, Scott SD. Development of a checklist to assess the quality of reporting of knowledge translation interventions using the Workgroup for Intervention Development and Evaluation Research (WIDER) recommendations. Implement Sci. 2013;8:52.
28. Glasgow RE, Harden SM, Gaglio B, Rabin B, Smith ML, Porter GC, et al. RE-AIM Planning and Evaluation Framework: Adapting to New Science and Practice With a 20-Year Review. Front Public Health. 2019;7:64.
29. Dallosso H, Khunti K, Gray LJ, Hulley K, Ghaly M, Patel N, et al. Implementation of a diabetes prevention programme in a multi-ethnic community in primary care in England: an evaluation using constructs from the RE-AIM Framework. Prim Care Diabetes. 2023;17:309–13.
30. Curtis E, Jones R, Tipene-Leach D, Walker C, Loring B, Paine SJ, et al. Why cultural safety rather than cultural competency is required to achieve health equity: a literature review and recommended definition. Int J Equity Health. 2019;18:174.
31. Mackean T, Fisher M, Friel S, Baum F. A framework to assess cultural safety in Australian public policy. Health Promot Intl. 2020;35:340–51.
32. Gagliardi AR, Morrison C, Anderson NN. The design and impact of culturally-safe community-based physical activity promotion for immigrant women: descriptive review. BMC Public Health. 2022;22:430.
33. Iziduh S, Dhakal S, Sihota R, Ye A, Friedenreich CM, Khanlou N, et al. Raising awareness about physical activity's role in reducing cancer risk: Qualitative interviews with immigrant women and community agency managers. BMC Public Health. 2023;response to peer edits under review.
34. Marulappa N, Anderson NN, Bethell J, Bourbonnais A, Kelly F, McMurray J, et al. How to implement person-centred care and support for dementia in outpatient and home/community settings: Scoping review. BMC Health Serv Res. 2022;22:541.
35. Daccarett S, Wiese LK, ÁngelesOrdóñez ML. Enhancing dementia education and cognitive screening in a Haitian population: a faith-based approach. J Community Health Nurs. 2021;38:103–19.
36. Epps F, Foster K, Alexander K, Brewster G, Chester M, Thornton J, et al. Perceptions and attitudes toward dementia in predominantly African American congregants. J Appl Gerontol. 2021;40:1511–6.
37. Epps F, Alexander K, Brewster GS, Parker LJ, Chester M, Tomlinson A, et al. Promoting dementia awareness in African-American faith communities. Public Health Nurs. 2020;37:715–21.
38. Wiese LK, Williams CL, Tappen RM, Newman D. An updated measure for investigating basic knowledge of Alzheimer's disease in underserved rural settings. Aging Ment Health. 2020;24:1348–55.
39. Merales J, Moore WT, Fernandez C, Chavez D, Ramirez M, Johnson D, et al. Feasibility of an Alzheimer's disease knowledge intervention in the Latino community. Ethn Health. 2020;25:747–58.
40. Lincoln KD, Chow TW, Gaines BF. BrainWorks: A comparative effectiveness trial to examine Alzheimer's disease education for community-dwelling African Americans. Am J Geriatr Psychiatry. 2019;27:53–61.
41. Askari N, Bilbrey AC, Garcia Ruiz I, Humber MB, Gallagher-Thompson D. Dementia Awareness Campaign in the Latino Community: A novel community engagement pilot training program with promotoras. Clin Gerontol. 2018;41:200–8.
42. Woo BK. Dementia health promotion for Chinese Americans. Cureus. 2017;9:e1411.
43. Seifan A, Ganzer CA, Vermeylen F, Parry S, Zhu J, Lyons A, et al. Development and validation of the Alzheimer's prevention beliefs measure in a multi-ethnic cohort-a behavioral theory approach. J Public Health (Oxf). 2017;39:863–73.
44. Grigsby TJ, Unger JB, Molina GB, Baron M. Evaluation of an audio-visual novela to improve beliefs, attitudes and knowledge toward dementia: A mixed-methods approach. Clin Gerontol. 2017;40:130–8.
45. Zheng X, Woo BK. E-mental health in ethnic minority: a comparison of YouTube and talk-based educational workshops in dementia. Asian J Psychiatr. 2017;25:246–8.
46. Zheng X, Chung JO, Woo BK. Exploring the impact of a culturally tailored short film in modifying dementia stigma among Chinese Americans: A pilot study. Acad Psychiatry. 2016;40:372–4.
47. Næss A, Moen B. Dementia and migration: Pakistani immigrants in the Norwegian welfare state. Ageing Soc. 2015;35:1713–38.
48. Diamond AG, Woo BK. Duration of residence and dementia literacy among Chinese Americans. Int J Soc Psychiatry. 2014;60:406–9.
49. Lee SE, Diwan S, Yeo G. Causal attributions of dementia among Korean American immigrants. J Gerontol Soc Work. 2010;53:743–59.
50. Purandare N, Luthra V, Swarbrick C, Burns A. Knowledge of dementia among South Asian (Indian) older people in Manchester. UK Int J Geriatr Psychiatry. 2007;22:777–81.
51. Valle R, Yamada AM, Matiella AC. Fotonovelas: A health literacy tool for educating Latino older adults about dementia. Clin Gerontol. 2006;30:71–88.
52. Livingston G, Huntley J, Sommerlad A, Ames D, Ballard C, Banerjee S, et al. Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. Lancet. 2020;396:413–46.
53. Ngandu T, Lehtisalo J, Solomon A, Levälahti E, Ahtiluoto S, Antikainen R, et al. A 2 year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in at-risk elderly people (FINGER): a randomised controlled trial. Lancet. 2015;385:2255–63.
54. Kivipelto M, Mangialasche F, Snyder HM, Allegri R, Andrieu S, Arai H, et al. World-Wide FINGERS Network: A global approach to risk reduction and prevention of dementia. Alzheimers Dement. 2020;16:1078–94.
55. Huggins LKL, Min SH, Dennis CA, Ostbye T, Johnson KS, Xu H. Interventions to promote dementia knowledge among racial/ethnic minority groups: a systematic review. J Am Geriatr Soc. 2022;70:609–21.
56. Godbee K, Guccione L, Palmer VJ, Gunn J, Lautenschlager N, Francis JJ. Dementia risk reduction in primary care: a scoping review of clinical guidelines using a behavioral specificity framework. J Alzheimers Dis. 2022;89:789–802.
57. Livingston G, Huntley J, Sommerlad A, Ames D, Ballard C, Banerjee S, et al. Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. Lancet. 2020;396:413–46.
58. Squires JE, Sullivan K, Eccles MP, Worswick J, Grimshaw JM. Are multifaceted interventions more effective than single-component interventions in changing health-care professionals' behaviours? An overview of systematic reviews. Implement Sci. 2014;9:152.
59. Stephen R, Barbera M, Peters R, Ee N, Zheng L, Lehtisalo J, et al. Development of the first WHO guidelines for risk reduction of cognitive decline and dementia: Lessons learned and future directions. Front Neurol. 2021;12:763573.

Publisher's Note