

Photovoice method with older persons: a review

Yuliya Mysyuk^{1*} and Martijn Huisman^{1,2}

¹Department of Epidemiology & Biostatistics, Amsterdam UMC, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands and ²Department of Sociology, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands

*Corresponding author. Email: y.mysyuk@vumc.nl

(Accepted 12 February 2019; first published online 28 March 2019)

Abstract

For a long time researchers have used photography for different purposes, in different ways and with different focus. Photovoice is a qualitative visual research method that refers to photographs taken by the participants themselves. It has been used with different age groups and populations. The use of photovoice in older populations requires its own study of approaches, techniques and challenges. In this article, we review existing studies using photovoice with older participants specifically, to consider its potential as a qualitative research method in the field of gerontology. We discuss advantages and limitations of the method in gerontological research and provide guidelines for future studies. Our results show that photovoice has been used to study a wide range of topics in older people, from health issues and the impact of environment on health and wellbeing, to leisure experiences of groups living with HIV/AIDS. Using photovoice helps researchers to capture live experiences and perceptions of older persons and conduct engaging, involving and empowering research facilitating interaction, reflection and connection of participants. However, conducting photovoice studies can be practically challenging, such as when addressing special needs of the participants, or ethical and other feasibility issues. To conclude, photovoice has great potential for being used in gerontological research, it can be altered to fit specific goals, divergent issues studied and different research contexts.

Keywords: photovoice; older persons; qualitative research; gerontology

Introduction

The use of photography for conducting research has its roots in anthropology (Collier, 1957; Collier and Collier, 1986). Anthropologists set out to capture images during their fieldwork using photography. Later, researchers started to use photographs as a way to facilitate dialogue with their participants (Prosser and Schwartz, 1998). They noticed that this approach helped to trigger participant memories and reduce fatigue, repetition and misunderstandings, therewith improving communication and interaction between researcher and participant (Collier, 1957; Collier and Collier, 1986). In more recent research, participants themselves are asked to capture images, meaning that photographs are taken from a more 'emic' (insider) perspective (Lal *et al.*, 2012).

Researchers have used photography for different purposes, in different ways and with different focus. Various approaches that use photography as a main element of data collection are referred to as: photovoice, photo-elicitation, auto-photography, hermeneutic photography, auto-driving, participant photography, participatory photographic research and photo novella (Lal *et al.*, 2012; Wang and Burris, 1997). These different terms that reflect how photography is used in research in fact reflect such factors as the discipline of the researcher, the theoretical framework to which the researcher adheres (*e.g.* hermeneutic photography, visual grounded theory), how photography is used (*e.g.* 'for eliciting interviews', stimulating discussion, exploring a particular topic) and also who is taking the photographs (*e.g.* participants, researcher).

Among these different visual-based approaches photovoice is exceptional in the sense that it is associated with a well-developed, replicated and established framework that incorporates participatory research principles (Wang and Burris, 1994, 1997; Wang *et al.*, 1998; Lal *et al.*, 2012). Photovoice is a photographic technique that is based on the participatory research of Wang and Burris (1997). They developed photovoice as a participatory action and health promotion research tool while working at the women's reproductive health and development programme with rural women in China. Rural women were asked to take the photographs of the spirit of the village women's everyday lives: their homes, the village or environment in which they work, play, worry and love (Wang and Burris, 1994, 1997).

Basically, photovoice is a qualitative visual research method that refers to photographs taken by the participants and these photographs are used to explore and address community needs, strengths and challenges, stimulate individual empowerment and create critical dialogue to advocate community change (Wang and Redwood-Jones, 2001; Hergenrath, 2009; Sanon *et al.*, 2014). It has been used with different age groups and populations, for example, with children (Fitzgerald *et al.*, 2009; Alexander *et al.*, 2014; Adams *et al.*, 2017), youth (Collins *et al.*, 2015; Heslop *et al.*, 2017), middle-aged persons (Flum *et al.*, 2010; Kingery *et al.*, 2016), care-givers (Garner and Faucher, 2014; Angelo and Egan, 2015), immigrants (Adekeye *et al.*, 2014; Rodriguez *et al.*, 2016), people with intellectual disabilities (Jurkowski, 2008; Jurkowski *et al.*, 2009; Akkerman *et al.*, 2014), persons with mental illness (Cabassa *et al.*, 2013a, 2013b) and indigenous groups (Castleden and Garvin, 2008; Huu-ay-aht First Nation, 2008; Jones *et al.*, 2013). Photovoice has also been used to examine and explore various issues such as chronic health problems, community health assessment and promotion (Allotey *et al.*, 2003; Oliffe and Bottorff, 2007), political violence (Lykes *et al.*, 2003) and discrimination (Graziano, 2004), nutrition and dietetic research (Martin *et al.*, 2010), and cancer and work experiences (Morrison and Thomas, 2014, 2015a, 2015b).

Clearly, many researchers have seen the benefits of photovoice for their studies. Among the advantages in using the method for research are involvement, empowerment and engagement of participants, giving voice to participants, the stimulation of reflections, and in-depth exploration of perspectives and experiences of participants. These advantages would also apply to qualitative research with older adults, in theory, who can be empowered to share their experiences, engage in dialogue, and feel supported and encouraged by other participants.

There have been a number of studies that discussed the use of photovoice with older persons in different research contexts (Baker and Wang, 2006; Blair and Minkler, 2009; Andonian and MacRae, 2011; Mahmood *et al.*, 2012; Annear *et al.*, 2014; Chan *et al.*, 2016; Lewinson and Esnard, 2015). One review discussed general literature on this approach in public health (Catalani and Minkler, 2010). Other studies and reviews focused on methodological strengths and issues of using the photovoice method and participant action research with older adults (Blair and Minkler, 2009; Novek *et al.*, 2012). The main conclusions coming out of these studies were that photovoice was considered an effective tool for eliciting older persons' perceptions of their communities. However, some challenges should be taken into account while using photovoice. Emphasis was put on the value of involving older persons in participatory action research, both for the scientific discipline of gerontology, as well as for older persons themselves.

Yet, existing studies that incorporated the photovoice method with older people have been mostly descriptive, lacking in-depth exploration and analysis of strengths and limitations of the photovoice method. The use of photovoice in older populations requires its own study of approaches, techniques and challenges. Often older persons may be under-represented in research studies and sometimes occupy marginalised positions in society. Therefore using photovoice, with its roots in empowerment, education and feminist theory, may be especially suited to elicit seniors' perspectives and their role in research projects because it gives them the opportunity to speak out and share their own stories and experiences.

However, it is important to remember that older participants may be more likely to experience mobility or visual problems and/or other compromised abilities, which may hamper the feasibility of the method. Functional limitations and the frailty of participants are aspects that should be taken into account and thus can need special adjustments or modifications in using the method with older persons, or could even be barriers to implementing the method in certain situations.

The purpose of this study is to review existing studies using photovoice with older participants specifically, to consider its potential as a qualitative research method in the field of gerontology. We discuss the advantages, but also possible limitations and challenges of the photovoice method with older persons in order to provide guidelines for and to aid researchers in improving the design of their future photovoice studies.

Methods

Identification of studies

Studies were identified by searches of twelve databases (PubMed, PsycINFO, EMBASE, Web of Science, CINAHL, Academic Search Premier, ScienceDirect, Wiley-Blackwell, LWW, Taylor & Francis/Informa, ERIC and COCHRANE). The search strategy consisted of the AND combination of two concepts: 'photovoice', 'older adults'. For these concepts, all relevant keyword variations were used, not only keyword variations in the controlled vocabularies of the various databases, but the free text word variations of these concepts as well (such as photovoice method/approach, participant-generated photographs, photo-elicitation, participatory action research, photovoice methodology, photographs, older persons/people,

elderly, seniors). Because of the usage of different terms that can actually refer to the same method by various studies, we have also included in our search strategy such terms as 'photovoice', 'photo-elicitation', 'photography', 'participant-generated photos' and 'photo novella' in order not to miss any relevant studies.

Searches were restricted to papers published in English. The bibliographies of relevant original and review articles (and two dissertations) were screened for additional studies, manuscripts or books that were not identified in our literature search. Both authors screened the titles and abstracts of all articles that were identified by the search. Full texts of potentially relevant articles were retrieved and assessed.

Inclusion of studies

Empirical studies that applied the photovoice method in research with older people were included in the current review. Moreover, other research papers and editorials that discussed the application of the method in older adults were also retained, as these could inform the discussion about the benefits and limitations of the method. Persons were considered 'older' when they were defined as such by the study itself, regardless of the age range of the participants.

Analysis of the studies

Analysis of studies began with the development of a descriptive coding scheme (Strauss and Corbin, 1990), including such categories as purpose of the study, participant characteristics (age, gender), objects or situations that were photographed, cameras used and period of photograph taking (type of camera, duration) and the method of data collection used together with photovoice.

Each article was systematically reviewed and analysed by labelling the text corresponding to the categories mentioned above. Detailed summaries of each article (based on the categories) were produced which allowed a clear picture of the categories between and across the articles to be obtained, and which allowed these categories to be compared amongst each other between the articles. After reviewing and analysing the advantages and limitations of the use of photovoice that were encountered in different studies, we identified some main themes and sub-themes. Each time when advantage, limitation, or implication and future consideration were mentioned in the study, they were noted and coded, then they were grouped together (advantages, limitations correspondingly). Thereafter, they all were categorised and combined into sub-themes. Finally, sub-themes created bigger overarching themes on the basis of common features of the corresponding group of advantages and limitations.

Results

Results of the search

Searched databases yielded different hits (for more details, see Figure 1).

Screening of titles and abstracts identified potentially relevant papers. For 57 articles, full texts were retrieved, however only the full texts of 52 studies were

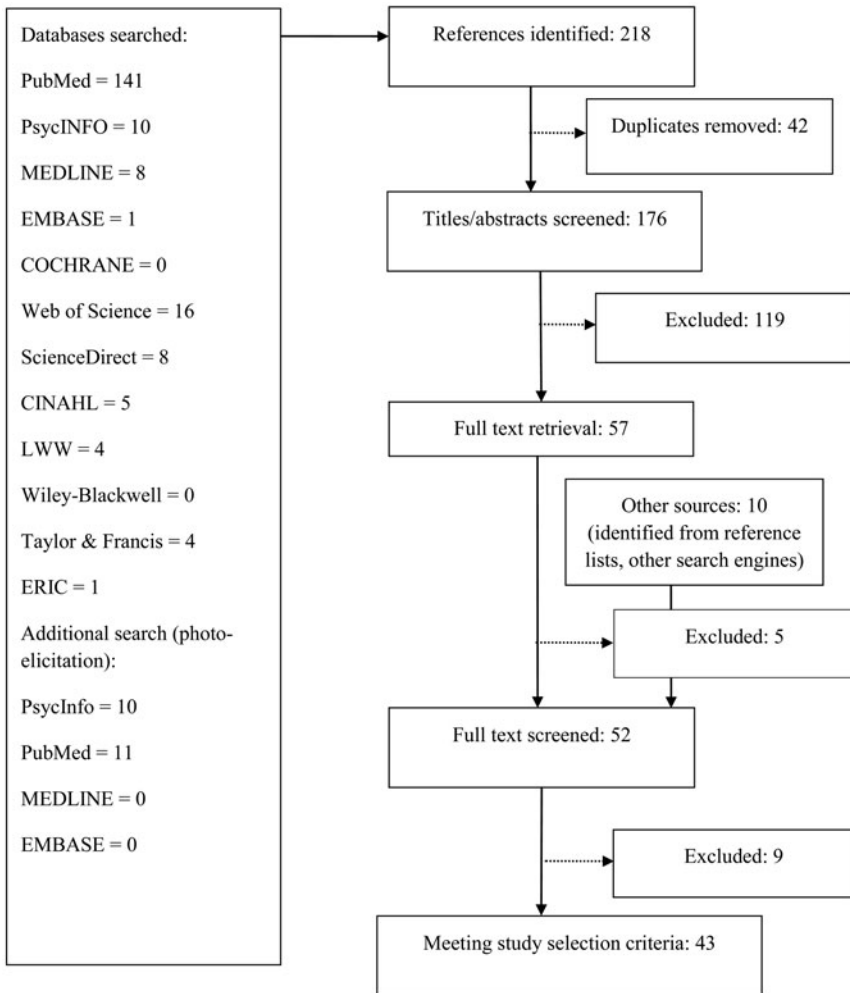


Figure 1. Literature search results flow chart.

screened (the other five articles appeared not to meet the inclusion criteria). These papers were thoroughly studied and nine articles were further excluded because they did not really discuss photovoice and/or older persons were not a target group of the study. Also, during this careful screening process ten additional studies were added on the basis of reference list searches. A final selection of 43 studies which met the inclusion criteria are addressed in this review (see Figure 1).

In this review we used the term photovoice and its meaning according to how it was introduced and developed by Wang and Burris (1997), referring to the photographs that were produced by the participants themselves for the purpose of the particular study. The studies were included in the review if the method used in the study corresponded to the definition that was mentioned above.

Terminology

There was inconsistency in the terms used to refer to the method: ‘photovoice’, ‘auto-photography’, ‘photo-elicitation’, ‘photo novella’ and ‘participant-generated photos’. As pointed out by Tishelman *et al.* (2016), some studies used these terms interchangeably. There were also studies that referred to these other terms when performing the photovoice method (Kohon and Carder, 2014; Fisher-McLean, 2017). Because these terms sometimes refer to different methods, which are often used for different empirical purposes, we provide a glossary of terms used. Some of them were introduced by particular scholars, or were adopted from and used in different fields (e.g. anthropology, sociology, photography, ethnography).

Photo novella was introduced by Wang and Burris (1994) and meant that instead of assigning the cameras to health specialists, policy makers and professional photographers, they were put into the hands of children, village women, community workers and other persons with little access to decision makers. Photo novella indicates ‘picture stories’. In their later studies Wang and Burris used the term photovoice instead (Wang and Burris, 1997).

Photo-elicitation refers to the simple idea of inserting a photograph into a research interview to explore a particular topic. It may use any visual images, including archival photographs or those generated by the researcher or participant (Frith and Harcourt, 2007). This technique was first used in research to examine how families adapted to living in a community with ethnically different people, and to new forms of work in urban factories (Collier, 1957; Collier and Collier, 1986). The most important question researched was the environmental basis of psychological stress (Collier, 1957; Collier and Collier, 1986; Harper, 2002). According to Harper (2002), photo-elicitation studies have been focused on four themes: social organisation/social class, community, identity and culture.

The term ‘*participant-generated or participant-produced photographs*’, the same as photovoice, refers to photographs produced by the participants themselves. They have been used for generating research data with a variety of populations and agendas (e.g. nursing research, mental illness research, health-care research, studies exploring fatherhood and smoking). These photographs are used most often for exploring issues that may be difficult to speak about directly (OliFFE *et al.*, 2008; Balmer *et al.*, 2015; Kantrowitz-Gordon and Vandermause, 2015; Morrison and Thomas, 2015a,b; Han and OliFFE, 2016; Tishelman *et al.*, 2016).

In *auto-photography* participants take photographs, choosing images and representations of themselves. This method attempts to ‘see the world through someone else’s eyes’ (Thomas, 2009: 1). In human geography, auto-photography has largely been used by researchers who studied children’s geographies throughout the world (the places and spaces of children’s lives) because it is an easy method for generating data and allows a self-representation from subject groups, children and youth, who may find it more difficult to express themselves verbally (Thomas, 2009).

Table 1 provides an overview of the studies that were identified. In the table we numerate the studies; the numeration of the studies will be used further in this review in order to make it easier for the reader to go through the studies and also to refer to the particular studies.

Table 1. Overview of studies using the photovoice method with older participants

Study	Age of the participants	Study purpose	Things that were photographed	Period of taking photographs; camera type	Method of data collection used with photovoice
Tishelman <i>et al.</i> (2016) ¹	54–94 years, older women and men	Better understanding of which aspects of people's surroundings are particularly meaningful for the people inhabiting them in the last phases of life	Pictures of that which was meaningful for participants in their surroundings	ND; digital cameras	Interviews
Stinson (2010) ²	ND	Offer important insights for educators, counsellors, health and wellness professionals, and policy makers into the concerns and challenges of grandparents who are raising their children's children	Objects, situations and settings they feel contribute to their quality of life and overall wellbeing	Three weeks; ND	ND
Panazzola and Leipert (2013) ³	55–89 years, older women	Mental health issues of rural senior women and factors that negatively and/or positively affect their mental health	NA	NA	Secondary analysis
Leipert <i>et al.</i> (2012) ⁴	55–89 years, older women	To explore ageing and social and health promotion needs and resources of older rural women in Ontario	Pictures in their neighbourhoods, towns or farms that depicted participants' health promotion needs and resources	Two weeks; disposable cameras	Focus groups
Leipert and Smith (2008) ⁵	66–96 years, older women	To explore rural older women's health promotion needs and resources	Take pictures in their neighbourhoods, towns or farms, that depicted their health promotion needs and resources	Three weeks; disposable cameras	Focus groups

(Continued)

Table 1. (Continued.)

Study	Age of the participants	Study purpose	Things that were photographed	Period of taking photographs; camera type	Method of data collection used with photovoice
Thornton (2015) ⁶	85 years and older, older men and women	To learn more about the experience of home and how it may be important to health and ageing in place	Photographs of things or spaces that represented home or health to them	ND; disposable cameras	Interviews
Balbale <i>et al.</i> (2014) ⁷	65 years and older, older women	To explore new approaches to public health communication in under-served populations	To capture images of physical activity opportunities and perceived barriers to physical activity. To identify visually things that are meaningful to them in terms of place, people, activities and other elements that might relate to being physically active	One week; disposable cameras	Interviews and focus groups
Lockett <i>et al.</i> (2005) ⁸	70 years and older, older women and men	To examine environmental factors influencing the walking choices of elderly people	To photograph areas in participants' neighbourhood where they felt safe and comfortable or where they thought other seniors might feel safe and comfortable pursuing leisure activities such as walking	Two weeks; disposable cameras	Focus groups
LeClerc <i>et al.</i> (2002) ⁹	72–93 years and older, older women	To describe and explore the everyday issues, challenges, struggles and needs of elderly, community-dwelling women	To photograph objects, people and events within older women's environment	Two weeks; disposable cameras	Interviews
Novek and Menec (2014) ¹⁰	54–81 years, older women and men	To use a participatory methodology to explore older adults' perceptions of age-friendliness and to identify	Photographs to illustrate community features that they considered 'age-friendly' or presented barriers	ND; digital cameras	Interviews and focus groups

priorities and barriers to making communities more age-friendly					
Schwengel <i>et al.</i> (2015) ¹¹	65 and older, older women	To examine older Latinas' socio-cultural context relative to health with the goal of developing a culturally sensitive health behaviour intervention	To identify things visually that are meaningful to them in terms of place, people, activities and other elements that might relate to their lifestyle	ND; disposable cameras	Interviews
Leibing <i>et al.</i> (2016) ¹²	66 and 96 years, older women and men	To understand what makes a place a 'home' for older people with declining health, and the concept of 'liminal homes'	Pictures of what, for participants, represented home	Two weeks; simple cameras	Interviews
Breeden (2016) ¹³	65 and older, older women and men	To explore telehealth sessions delivered by an occupational therapist	Photographs of home safety concerns	ND; digital cameras	Video sessions
Fritz and Cutchin (2017) ¹⁴	55 and older, older women and men	To focus on neighbourhood as the unit of analysis when examining person–environment–occupation relationships	The photographs of anything about participants' neighbourhood that they feel is important to their daily activities or stress	One week; smartphone cameras	Interviews
Kohon and Carder (2014) ¹⁵	62 and older, older women and men	To learn how low-income older adults perceive their independence and health, and how their place of residence contributes to these perceptions, as well as related perceptions of self	Pictures relating to the best and most challenging aspects of living in participants' apartment and neighbourhood, as well as their perceptions of independence	ND; disposable cameras	Interviews

(Continued)

Table 1. (Continued.)

Study	Age of the participants	Study purpose	Things that were photographed	Period of taking photographs; camera type	Method of data collection used with photovoice
Outcalt (2013) ¹⁶	Mixed sample (older and younger persons)	To examine the work performed by paid companions	Photographs of people, places, objects, activities or situations that they associated with the experience of being a paid companion or reflected the experience of having paid assistance and/or companionship	ND; single-use point-and-shoot cameras (or own cameras)	Interviews
Baker and Wang (2006) ¹⁷	50 and older, older women and men	To examine the potential use of photovoice in assessing the pain experience	Objects that best reflected their experiences with chronic pain (I phase); objects that reflected what they would like their lives to be like without chronic pain (II phase)	Two weeks; disposable cameras	Interviews
Adekeye <i>et al.</i> (2014) ¹⁸	Mixed sample (elderly and youth)	To examine the views of African immigrants on health, access to health resources in the USA and perceived barriers to a healthy wellbeing faced by the elderly immigrants in the community	Photographs of what 'being healthy' means to the participants and the barriers to being healthy (as African immigrants)	Two weeks; disposable cameras	Focus groups
Andonian and MacRae (2011) ¹⁹	55 and older, older women and men	To explore how self-identified thriving older adults living alone in an urban environment describe how they create and maintain social participation to manifest a meaningful daily life	Photographs of people, places and things that show their experience of creating and maintaining social participation in their life	One month; disposable cameras	Interviews and focus groups

Andress <i>et al.</i> (2017) ²⁰	59–85 years, older women and men	To examine how the older adults worked together to construct a shared narrative about their food environment, specifically access to food in a rural county in West Virginia	Food access	Three weeks; disposable cameras	Interviews
Rush <i>et al.</i> (2012) ²¹	65 and older, older women and men	To examine older adults' views about risk	Pictures of whatever risks they chose to depict – places, spaces, events, activities or situations with the potential to limit their activity or cause a change in their health, quality of life or independence	One week; digital cameras	Interviews
Rosen <i>et al.</i> (2011) ²²	50 and older, older women and men	To highlight the barriers to entering and remaining in methadone maintenance treatment that were identified through the photovoice project	Different themes (methadone maintenance treatment)	Eight weeks; point-and-shoot cameras	Follow-up sessions, interviews and focus groups
Lewinson and Esnard (2015) ²³	54–64 years, older women and men	To explore walkability and accessibility of an under-studied and transiently housed subset of community-dwelling older adults who reside in hotels	Photographs of places, spaces and objects in their hotels and surrounding communities that facilitated or inhibited their health management while residing at the hotel. Photovoice was repeated: facilitators and barriers to walkability and access to community resources	ND; digital cameras	Interviews and focus groups (photovoice was used with GIS)

(Continued)

Table 1. (Continued.)

Study	Age of the participants	Study purpose	Things that were photographed	Period of taking photographs; camera type	Method of data collection used with photovoice
Mahmood <i>et al.</i> (2012) ²⁴	65 and older, older women and men	To conduct a participatory research process with community-dwelling older adults using the photovoice method to identify neighbourhood physical environmental features and social aspects that influence physical activity in older adults	Physical and social aspects of their respective neighbourhoods that they perceived as facilitators or barriers to their physical activity behaviours	Two weeks; disposable cameras	Focus group
Genoe and Dupuis (2014) ²⁵	70–82 years, older women and men	To understand the meaning and experience of leisure for persons living with early stage memory loss	Meaningful objects and experiences relating to participants' leisure	ND; disposable cameras	Interviews, participant observations
Annear <i>et al.</i> (2014) ²⁶	Older women and men	To explore the environmental influences on active ageing in urban Christchurch, which included an assessment of active leisure participation	Aspects of their everyday life or environment that participants believed influenced their everyday activity participation	Two weeks; disposable cameras	Focus groups
Hopkins (2010) ²⁷	61–82, older women	To explore the value and meaning of nature-rich urban parks to older women, and the influence of park use on healthy ageing	Images that reflected the value and meaning of the urban parks and participants' park experiences	ND; disposable cameras	Interviews
Chan <i>et al.</i> (2016) ²⁸	55 and over, older women and men	To explore aspects of the housing environment considered by older people as important in facilitating ageing in place	Aspects of living in community-based housing or their own home that were important to them	Three months; own cameras	Interview

Bell and Menec (2015) ²⁹	54–81 years, older women and men	To explore older person's perceptions of what makes communities 'age-friendly'	Age-friendly features and barriers	ND	Interviews and focus groups
Yankeelov <i>et al.</i> (2015) ³⁰	60–78 years, older women and men	To provide the results of a photovoice project conducted with older adults affected by diabetes	Personal and community-specific environmental challenges to a healthy lifestyle	Two weeks; disposable cameras	Focus groups
Sims-Gould <i>et al.</i> (2010) ³¹	65–75 years, older women	To examine how 38 older women perceived and visualised their physical health and the benefits of engaging in an exercise programme	How participants experienced health and physical activity	Two weeks; disposable camera	Interview
Fitzpatrick <i>et al.</i> (2012) ³²	50–88 years, older women and men	To explore the use of photovoice to examine older Chinese, Vietnamese and Korean immigrants' experiences and perception of the prevention, management and treatment of cardiovascular diseases	Photographs to share their thoughts about heart health	Ten days; disposable cameras	Focus groups
Gosselink and Myllykangas (2007) ³³	50–56 years, older women	To examine the leisure behaviours of older women who were living in the USA and diagnosed with HIV/AIDS	What leisure meant to older woman both pre- and post-HIV/AIDS	ND; disposable cameras	Interviews and observations
Neill <i>et al.</i> (2011) ³⁴	65–75 years, older women	To investigate facilitators and barriers that rural women experience in acquiring and preparing food through the use of photovoice methodology	Experiences and perspectives relating to the acquisition and preparation of food	Two weeks; disposable cameras	Interviews and focus groups

(Continued)

Table 1. (Continued.)

Study	Age of the participants	Study purpose	Things that were photographed	Period of taking photographs; camera type	Method of data collection used with photovoice
Mitra <i>et al.</i> (2015) ³⁵	65 years and over, older women and men	To present an in-depth account of the enablers and barriers to walking among the participants	Participants' neighbourhood built and social environment	Two weeks; disposable cameras and own cameras	Interviews (photovoice a part of GIS)
Lewinson <i>et al.</i> (2012) ³⁶	54–94 years, older women and men	To give older adults, who often have little control over housing decisions, opportunities to share perspectives about an assisted living home and engage in critical dialogue about potential improvements that could enhance housing experiences	Objects and places that made the assisted living facility feel like a home	ND	Focus groups
Killion and Wang (2000) ³⁷	Younger women (28 and 36 years), older women (67–86 years)	Describes a pilot project designed to establish intergenerational contact between young, homeless women and senior, independently housed women through the use of photovoice	Places, objects, events and people that were related to their everyday experiences or usual routine and that were important to them	Seven months; ND	Group meetings
Novek <i>et al.</i> (2012) ³⁸	50 and over, older women and men	To identify the characteristics that older adults believe make their communities age-friendly or not age-friendly and to raise awareness about these characteristics	Participants themselves selected the subjects of their photographs within the broad parameters of what makes a community age-friendly or not	ND; digital cameras	Interviews and focus groups

Fisher-McLean (2017) ³⁹	60–78 years, older women and men	To investigate how older adults perceive crime in Ferguson, Missouri and how their quality of life is affected	Physical elements and places that they felt symbolised crime in their neighbourhood	ND; disposable cameras	Interviews
Chaudhury <i>et al.</i> (2012) ⁴⁰	65–92 years, older women and men	To explore the influence of neighbourhood residential density, physical and social environments on physical activity of older adults in Metro Vancouver, British Columbia and Metro Portland, Oregon	Physical and social aspects of their respective neighbourhoods that they perceived as facilitators or barriers to their physical activity behaviours	Two weeks; disposable cameras	Focus groups
Epstein <i>et al.</i> (2016) ⁴¹	Older adults and care-givers	To explore older adults' and care-givers' perspectives on in-home monitoring systems using photo-elicitation techniques	Participants' experiences with the in-home monitoring system	ND	Interviews, questionnaires, focus groups
Ronzi <i>et al.</i> (2016) ⁴²	60 and over, older women and men	To stimulate collective action and advocacy to affect policy and empowerment	Aspects of Liverpool that they felt 'enabled or prevented them to feel valued and part of the community'	One week; digital cameras	Interviews and focus groups
van Hees <i>et al.</i> (2017) ⁴³	Older adults (70–85 years) and professionals	To explore processes of meaning construction with respect to lifecycle robust neighbourhoods for older adults	Places they consider important for ageing-in-place	One to two weeks; ND	Interviews

Notes: Numeration of the studies in this review is used to make it easier for the reader to go through the studies and also to refer to the particular studies. USA: United States of America. GIS: geographic information system. ND: not defined NA: not applicable

Participants

In the majority of the studies (N = 29), the participants included both older men and women, whilst in four studies the gender of the participants was unspecified. In some studies the participants were primarily older women (N = 10). Some of the studies (N = 5) included a mixed sample, consisting of older and younger participants and/or professionals and care-givers. Several studies focused on particular issues and settings that are pertinent to older women, e.g. community-dwelling women, rural women's facilitators and barriers in acquiring and preparing food, or rural older women's health promotion needs and resources.^{4,5,9,23,24,34} This may reflect the fact that one of the theoretical frameworks at the root of the photovoice method is feminist theory (Wang and Burris, 1997; Wang and Redwood-Jones, 2001). Other target groups that we encountered in studies included: older Latinas, older Chinese, Vietnamese, Korean and African immigrants, and older people with diabetes.^{11,18,30,32}

Data collection

Interviews and/or focus groups were mostly used as methods of data collection together with photovoice (Table 1). Half of the studies conducted either focus groups or interviews as well as focus groups after the process of taking photographs by the participants. The rest of the studies conducted only interviews after the use of photovoice. During focus groups and interviews participants discussed photographs that best represented barriers and facilitators of physical activity,^{7,8,24} photographs that represented age-friendly communities,^{10,29} experiences of social participation^{19,38} and aspects of environment.^{24,26,40}

Cameras and period of photograph taking

The majority of studies (N = 24) used disposable cameras for taking photographs. Other studies stated that digital cameras, iPads, own cameras or other types of camera were used (N = 10). Thirteen studies reported giving participants two weeks for taking photographs, with the others ranging from one week to seven months (reported in one study). The study that used photovoice during seven months was designed to establish intergenerational contacts between young, homeless women and older, independently housed women through the use of photovoice (for more details, see Table 1). During the discussion of their photographs the women established mutual respect, exercised affirmation and also built alliances. Even though the women were from different generations and had different life experiences, the sharing of photographs revealed many commonalities between them and thus helped to establish intergenerational contact.

Topics covered

Studies covered a broad range of topics, such as the meaningful aspects of people's surroundings in the last phases of life; experiences of home; environmental factors influencing walking; Latinas' socio-cultural context relative to health; views of African immigrants on health; meaning and experience of leisure of persons with early stage memory loss; and perceptions of 'age-friendliness' (see Table 1).

Advantages of photovoice

Many advantages of photovoice were highlighted. These advantages could be grouped into the following themes: therapeutic effects of photovoice; enrichment of data; providing opportunity for capturing perceptions and sharing experiences; empowerment of subjects; photographs acting as facilitators for interactions and reflection; and specific advantages of photovoice (Table 2).

Therapeutic effects of photovoice

Photovoice was seen as facilitating catharsis and providing therapy for some participants that allowed them to express feelings and experiences that were causing them problems.^{4,6,22} Studies that demonstrated this advantage were exploring ageing and social and health promotion needs and resources of older rural women or the experiences of 'home' of older persons and their relation to health and ageing in place.^{4,6}

At the same time, photographs provided participants with the basis to talk about difficult issues and problems, things about which they normally would not talk. Topics that were more easily addressed with photographs included physical activity opportunities and perceived barriers to physical activity; physical elements and places that symbolised crime in the neighbourhood; or images of an age-friendly community.^{7,11,38,39}

Enrichment of data

Photovoice helped to evoke a wealth of information from older persons' perspectives, improving the understanding of the lived experiences of the participants, and gaining an understanding of what is meaningful and important to them.^{4,5,19,24,26,29} By talking and discussing various issues of interest, participants also became more acquainted with them, and realised and understood things that they might not have been aware of before. Thus, photovoice helped to increase awareness of the issues that were addressed in the research.^{20,23,24,30,32,42}

The combination of different methods such as photovoice, interviews, focus groups and participant observation was seen as particularly valuable. An example is provided by a study that examined the role of leisure activities in people with dementia (Genoe and Dupois, 2014). Combining photovoice with interviews and participant observation allowed a better understanding of the complexity of living with memory loss and how this impacted on leisure seeking. The study provided insight into the changes in leisure experiences and participants' day-to-day experience of life with memory loss (Genoe and Dupois, 2014).

Providing opportunity for capturing perceptions and sharing experiences

Photovoice was perceived as a form of creativity, a different 'lens' to illustrate participants' experiences, allowing less tangible aspects of life, such as feelings, experiences and life challenges, to be illustrated.^{1,4,7,8,10,15,22,26,29,38}

In addition, photovoice gave tools that helped participants to share their stories with other participants or researchers.^{20,22,37} The camera, as a research tool, was able to get to the places that would normally not be reachable by other means and capture things that would be difficult to study using other methods only, for instance, aspects of the home, social networks and local environments.^{26,28,30}

Table 2. Advantages of the use of photovoice

Themes	Sub-themes	Studies
Therapeutic effect of photovoice	<ul style="list-style-type: none"> • Catharsis and therapy for participants • Giving voice to participants 	4, 6, 7, 11, 22, 38, 39
Enrichment of data and information	<ul style="list-style-type: none"> • Elicitation of information from older people's perspectives and bringing new insights to the researchers and professionals • Increasing awareness • Combination of photovoice with other methods of data collection 	4, 5, 19, 20, 23, 24, 25, 26, 27, 29, 30, 32, 36, 38, 39, 42
Photovoice as a unique method for capturing perceptions and sharing experiences	<ul style="list-style-type: none"> • Photovoice as a form of creativity and a different 'lens' and depth of experiences • Generating co-constructed shared experiences • Camera as a research tool 	1, 4, 7, 10, 8, 15, 20, 22, 26, 28, 29, 30, 37, 38
Empowerment	<ul style="list-style-type: none"> • Participation and co-learning tool for participants • Excitement, mutual affirmation, involvement, engagement, empathy and interaction, positive experiences, compliance, enjoyment, support, encouragement of the participants • Sense of meaningfulness and value of knowledge • Means of advocating for change • Control of participants over the whole process 	4, 5, 8, 10, 22, 24, 26, 27, 28, 30, 32, 34, 36, 37, 42
Photographs as facilitators of interactions and reflection	<ul style="list-style-type: none"> • Stimulation of reflection of participants on different issues studied • Photographs as memory • Photographs as stimulus for discussions • Power of visual element of photographs 	1, 4, 13, 20, 23, 24, 27, 32, 36, 38, 39
Specific advantages based on topic of interest and/or purpose of study	<ul style="list-style-type: none"> • Different specific advantages related to the topic of interest and/or purpose of the particular study 	7, 8, 10, 20, 21, 24, 26, 27, 30, 32, 37, 38, 42
Other advantages	<ul style="list-style-type: none"> • Photovoice as 'authentic learning' experience • Less reliant on cognitive function than other methods 	1, 13

Empowerment of subjects

Using photovoice fostered empowerment of the participants, and enabled participation and co-learning between participants and researchers. Sharing and discussing their photographs helped participants to realise that their perspectives and

experiences are important and valuable. Participants became aware that their opinions matter and can be beneficial for others.^{4,5,8,28,30,42}

Participants supported and encouraged each other in showing and sharing their photographs, also empowering each other. High levels of interaction, empathy, compliance and engagement among them showed that they enjoyed the process and welcomed the opportunity of being together and talking about their photographs. Furthermore, involvement of the participants in the research process revealed new information, engaged them in dialogue and increased ties among the participants.^{4,22,24,27,32,34,36,37,42}

In two studies, participants' photographs were included in the report that was sent to political leaders and community organisations.^{10,42} This enabled their concerns and ideas to be brought to local policy makers and community organisations that helped to advocate for change.

At the same time, participants could control the process of taking photographs, and determine which images to discuss and analyse, and how they may be interpreted by the researchers. This enabled a more equal relationship between the participants and researchers within the research project.^{26,27}

Photographs as facilitators of interactions and reflection

Photographs served as an archival record and memory aid that provided participants with a visual reminder and a guide during interviews and focus groups.^{13,27} Moreover, photographs gave participants the possibility of expressing themselves both visually and textually, facilitating the dialogue and helping to delve deeper into the issues studied and thus obtain a more comprehensive understanding of these issues.^{1,4,27,34,32,36,38,39} In some studies the participants were using photographs as a metaphor for their feelings about ageing, physical activity and physical self, or the relationship between social participation and physical environment.^{34,38}

Photovoice allowed participants to reflect on their own experiences, which was influential as they could talk about the issues which were important for them or that they were concerned about. For example, experiences of home safety challenges, concerns with food access or characteristics of home environments.^{13,20,23,38}

Specific advantages based on topic of interest and/or purpose of study

Photovoice enabled various participants to identify, define and understand better the issues that were researched in the studies, e.g. features of environment, hazards and facilitators of walking, age-friendliness, chronic pain, food access, meaning of risks, facilitators and barriers for physical activity in social and physical environments, experiences with diabetes, multigenerational links, and features of the city that contributed or prevented respect and social inclusion.^{8,10,17,20,21,24,26,27,30,37,38,39,42}

Using photovoice for identifying environmental barriers to and facilitators of walking allowed not only specific hazards and facilitators of walking among community-dwelling older persons to be defined, but also allowed an understanding of how these factors relate to each other and to the broader environment to be gained (Lockett *et al.*, 2005). With the use of photovoice in the study on older persons' perceptions of age-friendly communities, participants defined for themselves what age-friendliness meant and documented positive features and barriers in different settings throughout their communities (Novak and Menec, 2014).

Other advantages

Photographs created by the participants themselves made the experience more applicable to them. Thus, photovoice was also perceived as a learning method (Breedem, 2016). Also, it was pointed out that photovoice is less reliant on cognitive function than other methods of data collection, like surveys, filling in diaries or questionnaires (Tishelman *et al.*, 2016), which seems particularly valuable for research among vulnerable older people.

Limitations of photovoice

In this part we discuss the main limitations mentioned in the various studies included in this review. We combined them in the following categories: issues with informed consent forms; training of the participants; mobility and vision problems of the participants; feasibility issues; issues with cameras; and issues with photographs (see Table 3).

Issues with informed consent forms

Issues with informed consent forms included refusal to sign informed consent and thus loss of potential participants, which appeared as an obstacle in many studies.^{5,15,29,32} Moreover, obtaining informed consent forms from people who were on the photographs was an issue which is clearly unique to using photovoice data collection.^{4,34} Some participants took photographs without people, as in that way they could avoid obtaining consents (Novek *et al.*, 2012). This might have implied that they felt not completely free to take photographs of everything that was important to them: sometimes reluctance to obtain consents was mentioned as a reason not to include people on the photographs (Bell and Menec, 2015).

Mobility and vision problems of the participants

Mobility and vision problems of participants, not uncommon in older adults, were sometimes limiting their participation in studies because it was hard for them to take photographs, or it was difficult to reach all places that would be considered meaningful objects for photographs. Another limitation that was closely related to the functional abilities of participants was the inability to accommodate the special needs (e.g. transportation, pain severity, physical limitations) of the participants. Due to functional problems, more vulnerable groups were sometimes excluded from the studies or were under-represented.^{4,15,28,39} Another limitation was that researchers had to accompany some participants, especially the ones with mobility issues, which was not always possible and/or feasible.^{5,29}

Feasibility issues

Feasibility issues that were mentioned by researchers encompassed seasonal characteristics, logistics, investment of time, money and effort, and the need for assistance for some participants. The season in which participants took pictures influenced what was captured in photographs on occasion. For instance, for studies investigating physical activity the season in which the photographs were taken could reveal different patterns or regularities (Lockett *et al.*, 2005).

Table 3. Limitations of using photovoice method

Limitations	Studies
Issues with informed consent forms	4, 5, 15, 29, 32, 34, 38
Training of the participants	7, 20, 30, 42
Mobility and vision problems of the participants	4, 15, 28, 39
Feasibility issues (e.g. season, assistance, logistics, time and money, special needs)	5, 8, 15, 22, 27, 28, 29, 37
Issues with cameras (e.g. manuals, unfamiliarity with technology)	27, 29, 32, 36, 38
Issues with photographs	29, 37

Training of the participants

Training provided to the participants was considered to be a possible limitation that could influence the results obtained, as the choice of photographs taken by the participants might be influenced by the instructions that they received during the training.^{7,20,30,42}

Issues with cameras and photographs

Issues with cameras and photographs, such as concerns and unfamiliarity with cameras and their manuals, and the difficulties in capturing with cameras the intangible aspects of social life such as isolation and exclusion, were also mentioned in some studies. Some of the photographs with valuable meaning or insightful information were not analysed because participants did not select them for discussion or were challenging to analyse.^{27,29,32,36,37,38}

Discussion

It appears from this review that photovoice has been used to study a wide range of topics in older people, from health issues and the impact of environment on health and wellbeing, to leisure experiences of groups living with HIV/AIDS. Also, the contexts and settings in which studies were conducted varied from rural regions in Canada and urban New Zealand to community-dwelling older persons who live in hotels. In terms of gender, in the majority of the studies (N = 29) the participants were both older men and women. In this review we have discussed the various strengths and limitations of using photovoice that were experienced by researchers. These are important for understanding better the challenges and advantages of using photovoice with older persons.

The main advantages of photovoice discussed in this review focused on its therapeutic effect for participants, enrichment of data, its ability to capture perceptions of respondents and allow them to share experiences, empowering participants, facilitating interaction, and the reflection and connection of participants.

Photovoice was perceived as a therapy for older participants, giving them the possibility to express their feelings and worries, and to discuss issues that were often unspoken. This experience is difficult to obtain by using other methods of data collection as photographs as such were guiding older persons in their stories

and served as special memory aids for reflections. This advantage of photovoice was also discussed by Levin *et al.* (2007). Levin *et al.* (2007) emphasised that photographs can serve as an alternative to verbal and written methods, providing participants with other means of self-expression, thereby increasing opportunities to engage in the research process, which was also the case in the studies discussed in our review.

Moreover, photovoice provided diverse information and data from older participants, and at the same time allowed a better understanding of their perspectives and allowed valuable insights into their experiences and stories to be gained. Their experiences were illustrated in a different creative way, using cameras and photographs, making them more alive and real, disclosing things, aspects and places that could not be discussed and reflected on by other means or methods. This strength of photovoice was also mentioned in the study of Novek *et al.* (2012) on the strengths and issues of using photovoice with older persons. That study examined age-friendly community characteristics by exploring older people's perceptions and views, and the ways in which they make sense of the world. The participants found a creative way to capture important less-tangible aspects of life such as social environment, independence, community history, respect and participation.

In addition, photovoice provided the opportunity for raising awareness, and helped participants to discuss their needs and issues of interest and to realise the importance of their own knowledge. These advantages are in line with the findings of other studies confirming that the discussion of the participants' photographs made them conscious and aware of, and even critical of, their own perceptions and the issues they were facing in their daily lives (Wang and Redwood-Jones, 2001; Catalani and Minkler, 2010; Novek *et al.*, 2012).

A number of studies that we reviewed have seen empowerment, engagement, participation and involvement of older participants as one of the main advantages of the method. Older participants were able to support and empower each other by sharing their knowledge and experiences. Moreover, this brought them recognition, self-confidence and self-value. This is important for various target groups but especially for older participants as recognition of their own knowledge and valuable experiences may be crucial when older people feel more vulnerable, under-valued and less significant. Furthermore, it gives participants control over the process, by actually participating in data collection and contributing to the study.

A review on photovoice literature in public health confirmed our findings that photovoice was able to generate a social process of critical consciousness and participation, therewith facilitating empowerment, by providing opportunities for reflection, critical thinking and active engagement (Catalani and Minkler, 2010). Empowerment was indeed one of the main goals of the development of the photovoice method by Wang and Burris (1997), emphasising that photovoice allocates visual image as a robust form of communication.

These apparent advantages of the photovoice method with older persons should stimulate and motivate researchers to conduct studies using this visual method of data collection. Moreover, as shown in this review it can be combined with other methods such as interviews, focus groups or observations. Topics of study in gerontology that may particularly benefit from including a photovoice element are,

among others: aspects of physical and social environments; walkability; safety issues; aesthetics of the neighbourhood; elements of informal care-giving; and issues of trust, social participation and social isolation.

Studies in this review encountered or discussed some important limitations and challenges of applying the photovoice method. These included the frailty or special needs of older participants, unfamiliarity with the technology and the need for extra help with camera use.

One of the important limitations and challenges mentioned was the difficulty of accommodating the special needs of some participants. Moreover, the majority of studies did not include participants who had some health-related issues or older people with disabilities. It is important to point out that excluding people with special needs or participants who require extra assistance can limit the diversity of the results obtained. While using photovoice with older persons, it should be expected that participants may have special needs or require more, additional or just simply different assistance than other participants. Therefore, these issues should be taken into account during the initial planning and design of the study. Paradoxically, photovoice as a method for empowerment may lead to the exclusion of vulnerable groups of participants if studies are not designed to properly accommodate their needs.

Baker and Wang (2006) conducted a study with individuals who had physical limitations and transportation barriers, with whom they were unable to conduct group sessions. However, Baker and Wang solved this issue by instead carrying out an exit interview survey (final interview survey of the project) and most of the other photo-taking communication by mail. Another possible solution for the physical limitations and challenges with camera use is to have photographs taken by another person or someone from the research team, but still directed by the participant. On one hand, while collaborating with another person to take pictures may enhance participation and allow older persons with mobility issues to participate and contribute to the study; on the other hand, it may limit their independence and furthermore questions about whose perspectives may be portrayed in the photographs can be also an issue here. For instance, in the study of Novek *et al.* (2012), research team members were available to accompany participants with the condition that the participant was in charge of the ideas captured in the photographs. This assurance of the available aid from the research team made it possible for participants with limited mobility to take part in and contribute to the study.

Issues and unfamiliarity with camera use may be addressed by devoting considerable time to explaining the instructions, letting older persons practise and ensuring that each person is comfortable using the camera. Moreover, it is possible to test the instructions and the ease of camera use beforehand with a few older persons in a pilot study.

As already mentioned, photovoice may lead to exclusion of more vulnerable older participants, instead of empowering, engaging and involving them. Groups of older people who are in danger of being excluded are those who have functional limitations and those who may be reluctant to use cameras or go out and engage with their environment to take photographs. These groups are likely to include a disproportionate share of people from lower socio-economic backgrounds, and people with mental health issues, low self-esteem and health problems.

Researchers should be aware of barriers to including representatives of such vulnerable groups and, especially because photovoice may have an empowering effect on participants, should take great care to include representatives of all relevant groups in their studies. Similarly, Catalani and Minkler (2010) stressed the importance of photovoice in enabling researchers and practitioners in the public health field to reach out to isolated communities and groups in order to engage them in the meaningful research process.

In different studies, the season and weather were noted as factors which should be taken into account in future research. Conducting research in different seasons (summer and winter) and with different weather conditions may reveal different information and insights, as these factors may influence participants' interaction with the community and with their surroundings. Indeed, some topics studied, such as patterns of physical activity, person–environment relationship, facilitators and barriers to food acquisition and preparation by rural older residents, or influences of the use of parks on healthy ageing, may change remarkably from one season to another. Longer study periods, allowing older participants to take photographs during both winter and summer, could prove much more useful.

Beyond the ethical principles that are important to consider when conducting any qualitative study, photovoice adds additional issues which need to be taken into account.

One of the most important challenges that many studies have encountered when using photovoice with older persons was the refusal to sign informed consent forms and difficulties with obtaining them from people who were captured on the photographs. This led to taking photographs without people on them or taking photographs without permission which made it impossible to use these photographs fully later on. Taking photographs of others without permission or photographs that risk showing a person, community or group in a negative light are key issues to consider when using photovoice. Wang *et al.* (2004) provided some valuable principles that other researchers have adopted to help minimise the ethical risks related to photovoice. These principles include differentiation between consent forms; engaging participants in education and discussion related to photography ethics; providing written material and instructions; reviewing consent for publication of photographs; and providing a copy of photographs to participants.

This review has several important strengths. It gives a comprehensive overview of the studies using photovoice with older persons, providing a clear picture of the study purpose, things that were captured by photographs, research participants and contexts, and methods of data collection used with photovoice. Moreover, it provides a thorough description and discussion of the advantages and limitations of the photovoice method with older persons.

Over the past few decades there has been an increasing interest in the use of participatory visual methods across different disciplines and within a wide range of social and geographic contexts. Researchers seek to explore social conditions and relationships, lived experiences, perceptions and views, as well as discuss the visual presentation of research findings through different means of visual media (Banks, 2001; Catalani and Minkler, 2010; Chalfen, 2011). This review shed light on important features and challenges of one of the participatory visual methods, *i.e.* photovoice, and moreover its usage with older persons. It has brought the evidence

that photovoice has great potential and can be used as a participatory research tool for conducting engaging and empowering research. Thus, the findings of this review can be useful not only for the field of gerontology but also for public health and visual research in general.

Despite its strengths, there are possible limitations that should be mentioned. Although we tried to identify all existing studies that applied photovoice in research with older persons, it is possible that some studies were omitted by our search strategy. Second, the focus of our review was primarily on the method itself rather than on how the data were analysed or what the outcomes of the studies using photovoice were. Moreover, restriction to studies published in English may have led to the exclusion of studies from other countries.

Several topics that are of interest to gerontologists may benefit from a photovoice approach. For instance, photovoice would enable gerontologists to ask participants to visualise situations or contexts that they associate with experiences of elder abuse. Photovoice could elicit insightful information where feelings of guilt or shame might hamper data gathering on the basis of in-depth interviewing alone. Another example could be photovoice as a method for eliciting and contextualising older migrants experiences of adapting to their new countries and their attitudes towards and experiences with institutional health care.

Conclusion

Our review suggests that the photovoice method is a flexible tool for strengthening gerontology research. It can be altered to fit specific goals, divergent issues studied and different contexts. This study shed light on important features, limitations and challenges of photovoice, thereby increasing our knowledge and understanding of this participatory visual method with older persons.

Using photovoice, researchers can conduct engaging and empowering research which also reduces the power imbalance in ways that only interviews or focus groups do not generally manifest. Although while conducting photovoice studies it is necessary to understand that it can be practically challenging as older participants may have special needs that can differ from the ones of other target groups. Well-designed studies could overcome many of those challenges.

Financial support. This work was supported by the European Union Horizon2020 Programme (grant agreement number 667661; Promoting Mental Wellbeing in the Ageing Population – MINDMAP). The study does not necessarily reflect the Commission's views and in no way anticipates the Commission's future policy in this area.

Conflict of interest. The authors declare no conflicts of interest.

References

- Adams S, Savahl S and Fattore T (2017) Children's representations of nature using photovoice and community mapping: perspectives from South Africa. *International Journal of Qualitative Studies on Health and Well-being* 12, 1–22.
- Adekeye O, Kimbrough J, Obafemi B and Strack RW (2014) Health literacy from the perspective of African immigrant youth and elderly: a PhotoVoice project. *Journal of Health Care for the Poor and Underserved* 25, 1730–1747.

- Akkerman A, Janssen CG, Kef S and Meininger HP** (2014) Perspectives of employees with intellectual disabilities on themes relevant to their job satisfaction. An explorative study using photovoice. *Journal of Applied Research in Intellectual Disabilities* **27**, 542–554.
- Alexander SA, Frohlich KL and Fusco C** (2014) Problematizing “play-for-health” discourses through children’s photo-elicited narratives. *Qualitative Health Research* **24**, 1329–1341.
- Allotey P, Reidpath D, Kouame A and Cummins R** (2003) The DALY, context and the determinants of the severity of disease: an exploratory comparison of paraplegia in Australia and Cameroon. *Social Science & Medicine* **57**, 949–958.
- Andonian L and MacRae A** (2011) Well older adults within an urban context: strategies to create and maintain social participation. *British Journal of Occupational Therapy* **74**, 2–11.
- Andress L, Hallie SS and Lee A** (2017) Co-constructing food access issues: older adults in a rural food environment in West Virginia develop a photonarrative. *Cogent Medicine* **4**, 1309804.
- Angelo J and Egan R** (2015) Family caregivers voice their needs: a photovoice study. *Palliative & Supportive Care* **13**, 70–12.
- Annear MJ, Cushman G, Gidlow B, Keeling S, Wilkinson T and Hopkins H** (2014) A place for visual research methods in the field of leisure studies? Evidence from two studies of older adults’ active leisure. *Leisure Studies* **33**, 618–643.
- Baker T and Wang C** (2006) Photovoice: use of a participatory action research method to explore the chronic pain experience in older adults. *Qualitative Health Research* **16**, 1405–1413.
- Balbale SN, Schwingel A, Chodzko-Zajko W and Huhman M** (2014) Visual and participatory research methods for the development of health messages for underserved populations. *Health Communication* **29**, 728–740.
- Balmer C, Griffiths F and Dunn J** (2015) A review of the issues and challenges involved in using participant-produced photographs in nursing research. *Journal of Advanced Nursing* **71**, 1726–1737.
- Banks M** (2001) *Visual Methods in Social Research*. London: Sage.
- Bell S and Menec V** (2015) ‘You don’t want to ask for the help’: The imperative of independence: is it related to social exclusion? *Journal of Applied Gerontology* **34**, 1–21.
- Blair T and Minkler M** (2009) Participatory action research with older adults: key principles in practice can be used in general. *Gerontologist* **49**, 651–662.
- Breeden LE** (2016) Occupational therapy home safety intervention via telehealth. *International Journal of Telerehabilitation* **8**, 29–40.
- Cabassa LJ, Nicasio A and Whitley R** (2013a) Picturing recovery: a photovoice exploration of recovery dimensions among people with serious mental illness. *Psychiatric Services* **64**, 837–842.
- Cabassa LJ, Parcesepe A, Nicasio A, Baxter E, Tsemberis S and Lewis-Fernandez R** (2013b) Health and wellness photovoice project: engaging consumers with serious mental illness in health care interventions. *Qualitative Health Research* **23**, 618–630.
- Castleden H, Garvin T and Huu-ay-aht First Nation** (2008) Modifying Photovoice for community-based participatory Indigenous research. *Social Science & Medicine* **66**, 1393–1405.
- Catalani C and Minkler M** (2010) Photovoice: a review of the literature in health and public health. *Health Education & Behavior* **37**, 424–451.
- Chalfen R** (2011) Differentiating practices of participatory visual media production. In Margolis E and Pauwels L (eds), *The Sage Handbook of Visual Research Methods*. London: Sage, pp. 186–200.
- Chan AW, Chan HY, Chan IK, Cheung BY and Lee DT** (2016) An age-friendly living environment as seen by Chinese older adults: a ‘photovoice’ study. *International Journal of Environmental Research in Public Health* **13**, 1–9.
- Chaudhury H, Mahmood A, Michael YL, Campo M and Hay K** (2012) The influence of neighborhood residential density, physical and social environments on older adults’ physical activity: an exploratory study in two metropolitan areas. *Journal of Aging Studies* **26**, 35–43.
- Collier J** (1957) Photography in anthropology: a report on two experiments. *American Anthropologist* **59**, 843–859.
- Collier J and Collier M** (1986) *Visual Anthropology: Photography as a Research Method*, revised and expanded edition. Albuquerque, NM: University of New Mexico Press.
- Collins ML, Baiardi JM, Tate NH and Rouen PA** (2015) Exploration of social, environmental, and familial influences on the sexual health practices of urban African American adolescents. *Western Journal of Nursing Research* **37**, 1441–1457.

- Epstein I, Aligato A, Krimmel T and Mihailidis A** (2016) Older adults' and caregivers' perspectives on in-home monitoring technology. *Journal of Gerontological Nursing* **42**, 43–50.
- Fisher-McLean KL** (2017) *Images of Community Crime in Ferguson, Missouri: Older Adults' Perspectives Prior to July 2014*. ProQuest Information & Learning. Available at <https://mospace.umsystem.edu/xmlui/bitstream/handle/10355/49090/research.pdf?sequence=2&isAllowed=y/>.
- Fitzgerald E, Bunde-Birouste A and Webster E** (2009) Through the eyes of children: engaging primary school-aged children in creating supportive school environments for physical activity and nutrition. *Health Promotion Journal of Australia* **20**, 127–132.
- Flum MR, Siqueira CE, DeCaro A and Redway S** (2010) Photovoice in the workplace: A participatory method to give voice to workers to identify health and safety hazards and promote workplace change—a study of university custodians. *American Journal of Industrial Medicine* **53**, 1150–1158.
- Fitzpatrick AL, Steinman LE, Tu SP, Ly KA, Ton TG, Yip MP and Sin MK** (2012) Using photovoice to understand cardiovascular health awareness in Asian elders. *Health Promotion Practice* **13**, 48–54.
- Frith H and Harcourt D** (2007) Using photographs to capture women's experiences of chemotherapy: reflecting on the method. *Qualitative Health Research* **17**, 1340–1350.
- Fritz H and Cutchin MP** (2017) Changing neighborhoods and occupations: experiences of older African-Americans in Detroit. *Journal of Occupational Science* **24**, 140–151.
- Garner SL and Faucher MA** (2014) Perceived challenges and supports experienced by the family caregiver of the older adult: a photovoice study. *Journal of Community Health Nursing* **31**, 63–74.
- Genoe MR and Dupuis SL** (2014) The role of leisure within the dementia context. *Dementia (London)* **13**, 33–58.
- Gosselink CA and Myllykangas SA** (2007) The leisure experiences of older US women living with HIV/AIDS. *Health Care Women International* **28**, 3–20.
- Graziano KJ** (2004) Oppression and resiliency in a post-apartheid South Africa: unheard voices of Black gay men and lesbians. *Cultural Diversity and Ethnic Minority Psychology* **10**, 302–316.
- Han CS and Olliffe JL** (2016) Photovoice in mental illness research: a review and recommendations. *Health (London)* **20**, 110–126.
- Harper D** (2002) Talking about pictures: a case for photo elicitation. *Visual Studies* **17**, 13–26.
- Hergenrather K** (2009) Photovoice as community-based participatory research: a qualitative review. *American Journal of Behaviour* **33**, 686–699.
- Heslop CW, Burns S, Lobo R and McConigley R** (2017) Developing a framework for community-based sexual health interventions for youth in the rural setting: protocol for a participatory action research study. *BMJ Open* **7**, e013368.
- Hopkins H** (2010) *Nature Rich Settings and Healthy Ageing: Older Women in Urban Parks* (Thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy), New Zealand: Lincoln University. New Zealand Available at <http://hdl.handle.net/10182/2735>.
- Jones B, Ingham TR, Cram F, Dean S and Davies C** (2013) An indigenous approach to explore health-related experiences among Maori parents: the Pukapuka Hauora asthma study. *BMC Public Health* **13**, 228.
- Jurkowski JM** (2008) Photovoice as participatory action research tool for engaging people with intellectual disabilities in research and program development. *Journal of Intellectual and Developmental Disability* **46**, 1–11.
- Jurkowski JM, Rivera Y. and Hammel J** (2009) Health perceptions of Latinos with intellectual disabilities: the results of a qualitative pilot study. *Health Promotion Practice* **10**, 144–155.
- Kantrowitz-Gordon I and Vandermause R** (2015) Metaphors of distress: photoelicitation enhances a discourse analysis of parents' accounts. *Qualitative Health Research* **26**, 1031–1043.
- Killion CM and Wang CC** (2000) Linking African American mothers across life stage and station through photovoice. *Journal of Health Care for the Poor and Underserved* **11**, 310–325.
- Kingery FP, Naanyu V, Allen W and Patel P** (2016) Photovoice in Kenya: sing a community-based participatory research method to identify health needs. *Qualitative Health Research* **26**, 92–104.
- Kohon J and Carder P** (2014) Exploring identity and aging: auto-photography and narratives of low income older adults. *Journal of Aging Studies* **30**, 47–55.
- Lal S, Jarus T and Suto MJ** (2012) A scoping review of the Photovoice method: implications for occupational therapy research. *Canadian Journal of Occupational Therapy* **79**, 181–190.
- LeClerc CM, Wells DL, Craig D and Wilson JL** (2002) Falling short of the mark: tales of life after hospital discharge. *Clinical Nursing Research* **11**, 242–263.

- Leibing A, Guberman N and Wiles J** (2016) Liminal homes: older people, loss of capacities, and the present future of living spaces. *Journal of Aging Studies* **37**, 10–19.
- Leipert BD, McWilliam C, Kelley M, Forbes D, Wakewich P and George J** (2012) Rural women's health promotion needs and resources: a photovoice perspective. In Kulig J and Williams E (eds), *Health in Rural Canada*. Vancouver: University of British Columbia, pp. 481–501.
- Leipert BD and Smith J** (2008) Using photovoice to explore rural older women's health promotion needs and resources. In Armstrong P and Deadman J (eds), *Women's Health: Intersections of Policy, Research, and Practice*. Toronto: Women's Press, pp. 135–150.
- Levin T, Scott BM, Borders B, Hart K, Lee J and Decanini A** (2007) Aphasia talks: photography as a means of communication, self-expression, and empowerment in persons with aphasia. *Topics in Stroke Rehabilitation* **14**, 72–84.
- Lewinson T and Esnard A-M** (2015) Resource accessibility and walkability among older adults in extended-stay hotels. *Journal of Housing for the Elderly* **29**, 396–418.
- Lewinson T, Robinson-Dooley V and Grant KW** (2012) Exploring 'home' through residents' lenses: assisted living facility residents identify homelike characteristics using photovoice. *Journal for Gerontological Social Work* **55**, 745–756.
- Lockett D, Willis A and Edwards N** (2005) Through seniors' eyes: an exploratory qualitative study to identify environmental barriers to and facilitators of walking. *Canadian Journal of Nursing Research* **37**, 48–65.
- Lykes MB, Blanche MT and Hamber B** (2003) Narrating survival and change in Guatemala and South Africa: the politics of representation and a liberatory community psychology. *American Journal of Community Psychology* **31**, 79–90.
- Mahmood A, Chaudhury H, Michael YL, Campo M, Hay K and Sarte A** (2012) A photovoice documentation of the role of neighborhood physical and social environments in older adults' physical activity in two metropolitan areas in North America. *Social Science & Medicine* **74**, 1180–1192.
- Martin N, Garcia A and Leipert B** (2010) Photovoice and its potential use in nutrition and dietetic research. *Canadian Journal of Dietetic Practice and Research* **71**, 93–97.
- Mitra R, Siva H and Kehler M** (2015) Walk-friendly suburbs for older adults? Exploring the enablers and barriers to walking in a large suburban municipality in Canada. *Journal of Aging Studies* **35**, 10–19.
- Morrison T and Thomas R** (2014) Survivors' experiences of return to work following cancer: a photovoice study. *Canadian Journal of Occupational Therapy* **81**, 163–172.
- Morrison T and Thomas R** (2015a) Comparing men's and women's experiences of work after cancer: a photovoice study. *Supportive Care in Cancer* **23**, 3015–3023.
- Morrison T and Thomas R** (2015b) Cancer survivors' concealment or disclosure of diagnosis: implications for return to work. *Work* **52**, 643–655.
- Neill C, Leipert BD, Garcia AC and Klosock M** (2011) Using photovoice methodology to investigate facilitators and barriers to food acquisition and preparation by rural older women. *Journal of Nutrition in Gerontology and Geriatrics* **30**, 225–247.
- Novak S and Menec VH** (2014) Older adults' perceptions of age-friendly communities in Canada: a photovoice study. *Ageing & Society* **34**, 1052–1072.
- Novak S, Morris-Oswald T and Menec V** (2012) Using photovoice with older adults: some methodological strengths and issues. *Ageing & Society* **32**, 451–470.
- Oliffe JL and Botorff JL** (2007) Further than the eye can see? Photo elicitation and research with men. *Qualitative Health Research* **17**, 850–858.
- Oliffe JL, Botorff JL, Kelly M and Halpin M** (2008) Analyzing participant produced photographs from an ethnographic study of fatherhood and smoking. *Research in Nursing & Health* **31**, 529–539.
- Outcalt L** (2013) Paid companions: a private care option for older adults. *Canadian Journal on Ageing* **32**, 87–102.
- Panazzola P and Leipert B** (2013) Exploring mental health issues of rural senior women residing in southwestern Ontario, Canada: a secondary analysis photovoice study. *Rural and Remote Health* **13**, 2320.
- Prosser J and Schwartz D** (1998) Photographs within the sociological research process. In Prosser J (ed.), *Image Based Research*. London: Palmer Press, pp. 115–130.
- Rodriguez PI, Dean J, Kirkpatrick S, Berbary L and Scott S** (2016) Exploring experiences of the food environment among immigrants living in the Region of Waterloo, Ontario. *Canadian Journal of Public Health* **107**, 5310.

- Ronzi S, Pope D, Orton L and Bruce N** (2016) Using photovoice methods to explore older people's perceptions of respect and social inclusion in cities: opportunities, challenges and solutions. *SSM-Population Health* 2, 732–45.
- Rosen D, Goodkind S and Smith ML** (2011) Using Photovoice to identify service needs of older African American methadone clients. *Journal of Social Service Research* 37, 526–538.
- Rush KL, Murphy MA and Kozak JF** (2012) A photovoice study of older adults' conceptualizations of risk. *Journal of Aging Studies* 26, 448–458.
- Sanon MA, Evans-Agnew RA and Boutain DM** (2014) An exploration of social justice intent in photovoice research studies from 2008 to 2013. *Nursing Inquiry* 21, 212–226.
- Schwengel A, Linares DE, Galvez P, Adamson B, Aguayo L, Bobitt J, Castañeda Y, Sebastião E and Marquez DX** (2015) Developing a culturally sensitive lifestyle behavior change program for older Latinas. *Qualitative Health Research* 25, 1733–1746.
- Sims-Gould J, Hurd Clarke L, Ashe MC, Naslund J and Liu-Ambrose T** (2010) Renewal, strength and commitment to self and others: older women's reflections of the benefits of exercise using Photovoice. *Qualitative Research in Sport and Exercise* 2, 250–266.
- Stinson DL** (2010) This ain't something you can pray away: grandparents raising grandchildren, a photovoice project. *Journal of Health Care for the Poor and Underserved* 21, 1–25.
- Strauss A and Corbin J** (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Sage, CA: Newbury Park.
- Thomas M** (2009) *Auto-photography*. Columbus, OH: The Ohio State University.
- Thornton MJ** (2015) Exploring home in the context of health for the oldest old (Thesis submitted in partial fulfillment for the degree of Doctor of Philosophy), University of Colorado, US.
- Tishelman C, Lindqvist O, Hajdarevic S, Rasmussen BH and Goliath I** (2016) Beyond the visual and verbal: using participant-produced photographs in research on the surroundings for care at the end-of-life. *Social Science & Medicine* 168, 120–129.
- van Hees S, Horstman K, Jansena M and Ruwaard D** (2017) Photovoicing the neighbourhood: understanding the situated meaning of intangible places for ageing-in-place. *Health & Place* 48, 11–19.
- Wang C and Burris M** (1994) Empowerment through Photo novella: portraits of participation. *Health Education Quarterly* 21, 171–186.
- Wang C and Burris MA** (1997) Photovoice: concept, methodology, and use for participatory needs assessment. *Health Education and Behaviour* 24, 369–387.
- Wang CC, Morrel-Samuels S, Hutchison PM, Bell L and Pestronk RM** (2004) Flint Photovoice: community building among youths, adults, and policymakers. *American Journal of Public Health* 94, 911–913.
- Wang C and Redwood-Jones Y** (2001) Photovoice ethics: perspectives from Flint Photovoice. *Health Education & Behavior* 28, 560–572.
- Wang C, Yi W, Tao Z and Carovano K** (1998) Photovoice as a participatory health promotion strategy. *Health Promotion International* 13, 75–86.
- Yankeelov PA, Faul AC, D'Ambrosio JG, Collins WL and Gordon B** (2015) Another day in paradise: a photovoice journey of rural older adults living with diabetes. *Journal of Applied Gerontology* 34, 199–218.